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Promoting Health, Protecting the Environment

William E. Applegate, III,  
John H. Burris  
Tony Graham, Jr., MD  
John B. Pate, MD

September 30, 1993

Mr. Earl Bozeman  
US EPA Region IV  
345 Courtland Street, NE  
Atlanta, GA 30365

REC'D.

OCT 05 1993

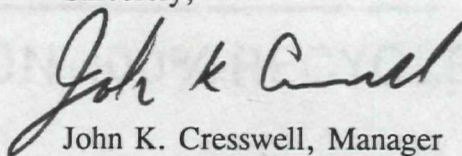
WILSON

Dear Earl:

Enclosed is a copy of the Site Investigation Report for Nucor Steel, Darlington County (SCD 044 940 369). Due to the impact on nearby wetlands and a downstream fishery, and the potential for exposure to off-site disposal areas, the Nucor Steel site would normally be given a HIGH priority for Hazardous Ranking System (HRS) Documentation Package preparation for placement on the National Priorities List (NPL). However, due to the regulatory oversight of several South Carolina Department of Health and Environmental Control (SCDHEC) bureaus, it is recommended that no further Federal Superfund activities be undertaken at the site. The SCDHEC Bureau of Water Pollution Control is currently assessing groundwater quality at the site and addressing the issue of stormwater permitting. The Solid Waste Permitting section of the SCDHEC Bureau of Solid & Hazardous Waste Management has permitted the on-site landfills. The SCDHEC Bureau of Air Quality Control has issued permits and oversees air monitoring for the present facility as well as the new facility under construction. Further assessment/remedial action should be taken by the appropriate SCDHEC Bureau.

If you have any questions please call me at (803) 734-5197.

Sincerely,



John K. Cresswell, Manager  
Site Screening Section  
Bureau of Solid & Hazardous Waste Management

JKC/dps



SITE INVESTIGATION  
NUCOR STEEL  
DARLINGTON COUNTY  
SCD 044 940 369

DATE REPORT ACCEPTED 7/03/02  
DISPOSITION VERAP  
SAW SIGNATURE

Completed By: Jonathan McInnis  
Reviewed By: Robert Cole RC  
Site Screening Section  
Bureau of Solid & Hazardous Waste Management  
South Carolina Department of Health & Environmental Control  
2600 Bull Street  
Columbia, SC 29202

Date Completed: September 30, 1993

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## **I. INTRODUCTION/EXECUTIVE SUMMARY**

The Nucor Steel site (Nucor) is located in Darlington, South Carolina off Highway 52. Nucor began operations at the facility in 1969 as a manufacturer converting scrap steel into products such as angle iron, rounds, channels, and flat bars. Waste material such as slag, mill scale, cooling water sludge, sculls, and emission control dust were incorporated into much of the fill material at the site. In addition, emission control dust was disposed of off-site in a nearby field. Site operations have resulted in groundwater, surface-soil, and surface water sediment contamination as documented by sampling performed for this Site Investigation (SI).

Although groundwater has been impacted by operations at the site, the groundwater pathway will not be evaluated due to the low number of nearby private wells and the presence of a confining unit restricting the vertical migration of contamination to deeper aquifers. Wetlands bordering Lucas Creek have shown elevated levels of metals and PCBs. A downstream fishing pond was found to contain elevated levels of zinc. Surficial soil contamination has been documented both on-site and at the off-site emission control dust (baghouse dust) disposal locations.

Due to the impact on nearby wetlands and a downstream fishery, and the potential for exposure to off-site disposal areas, the Nucor Steel site would normally be given a HIGH priority for Hazard Ranking System (HRS) Documentation Package preparation for placement on the National Priorities List (NPL). However, due to the regulatory oversight of several South Carolina Department of Health & Environmental Control (SCDHEC) bureaus, it is recommended that no further Federal Superfund activities be undertaken at the site. The SCDHEC Bureau of Water Pollution Control is currently assessing groundwater quality at the site and addressing the issue of stormwater permitting. The Solid Waste Permitting section of the SCDHEC Bureau of Solid & Hazardous Waste Management has permitted the on-site landfills. The SCDHEC Bureau of Air Quality Control has issued permits and oversees air monitoring for the present facility as well as the new facility under construction. Further assessment/remedial actions should be taken by the appropriate SCDHEC Bureau.



## II. SITE BACKGROUND AND HISTORY

### A. Ownership History

The main plant property area has been owned since 1969 by:

Nucor Steel, a division of Nucor Corporation  
Post Office Box 525  
Darlington, South Carolina 29532

Contact: Joseph A. Rutkowski, General Manager  
(803) 393-5841

The portion of the property that contains the fishing pond was formerly owned by:

Charles Kirkland Dunlap, Jr.  
412 Goodson Road  
Hartsville, SC 29550  
(Ref. 29)

### B. Site Description

The Nucor Steel site is located approximately 5 miles north of Darlington, South Carolina on the eastern side of US Highway 52. The site encompasses approximately 500 to 600 acres (Ref. 3). The property is bounded to the northeast by Black Creek and by Lucas Creek for a portion of the southwest boundary. The geographic coordinates of the site are 34 22' 20" N latitude and 79 53' 45" W longitude (Ref. 1). Prior to development of the property as a steel mill, the land was used for agricultural purposes. The surrounding area is used primarily for agriculture, with scattered residential and industrial areas. The Nucor Cold Finishing plant is located immediately across US Highway 52 to the west.

The dominant on-site feature is the main mill building. This building contains five (5) electric arc furnaces, one ladle metallurgical facility, two continuous casters, and two reheat furnaces (Ref. 29). The building is approximately 1500 feet long and 1200 feet wide at its largest points (Ref. 7). Other buildings on-site consist of a guard shack, main office, cafeteria, maintenance shop, warehouse, fabrication shop, and various other storage facilities (Ref. front map). Railroad tracks run along the south side of the plant property along the northern side of the mill building. These tracks are used to carry scrap metal into the furnace area. Surrounding the mill building are eight cooling water ponds. Associated with these cooling water ponds is a large holding pond located approximately 1000 feet north of the mill building. Two industrial landfills are located on-site; one in use, the other recently closed. The landfill locations can be

seen in Figure I. Near the closed landfill is an impoundment known as "Nucor Pond". This impoundment has received cooling water discharges over the years and was observed to be receiving contact cooling water during the site reconnaissance for this SI (Ref. 39).

Presently, a new mill is under construction at the site. The anticipated opening date for this mill is early 1994. The new mill will replace the currently operating melt shop and associated facilities. The site layout appeared to be changing rapidly during the reconnaissance and sampling trips for this SI.

### C. Operational / Regulatory History

Nucor began operation at the site in 1969. The mill converts scrap steel into products including angle iron, rounds, channels, and flat bars (Ref. 7). The facility contains five electric arc furnaces (EAF), one ladle metallurgical facility (LMF), two continuous casters, two reheat furnaces, and two rolling mills. The plant has a capacity to produce 520,000 tons of low carbon steel per year (Ref. 29). A description of the steel production process follows, taken from a USEPA Level II Air Compliance Inspection performed in 1990. The entire document can be found as Reference 29.

*Steel scrap is received at the plant by rail and truck and is stockpiled for future use. The steel scrap is transferred to a precharging area and to charging buckets by magnetic crane. Each EAF is operated by batch process. The scrap steel is placed in a charging bucket and weighed prior to charging. The charging bucket is hoisted above the open EAF vessel, is opened at the bottom, and the charge material is dumped into the vessel. After charging the EAF, the roof is swung back into place over the furnace vessel and seated. The arc is struck between three electrodes that are triangularly arranged. As the process or "melt" begins, the electrodes bore down through the scrap steel, melting material as they descend to form a pool of molten metal at the bottom of the furnace. The pool of metal increases in size as the melt continues and allows unmelted scrap to "collapse" into the molten pool. At some point during the melt cycle the current is shut off, the electrodes retracted, and the roof swung away for an additional charge of material. The scrap material is dropped into the pool of molten metal, the roof is swung back into position and sealed, the electrodes are extended back into the furnace, and the current is switched on to continue the melt cycle. This procedure may be repeated for one or more additional charges. Any required alloying materials and limestone may be added to the furnace after the last charge. Near the end of the melt cycle, an*

*oxygen lance may be used to oxidize residual impurities (i.e., Carbon) in the molten steel.*

*The EAF is tapped by retracting the electrodes, swinging the furnace roof away, and tilting the furnace vessel so that the molten material can exit through a pouring spout. The molten steel is poured into a preheated ladle which is removed at the end of the tap by overhead crane. If additional refining is required, the ladle is moved to the LMF for addition of limestone and alloys, and further melting to produce structural grade steel.*

*The continuous casting machine receives the ladle from the tapped furnace or the LMF. The ladle is tapped from the bottom, which allows casting of only the molten steel. After the steel has been drained, the slag layer is dumped in a slag area to be cooled. The steel billets exiting the caster are cut to a convenient length and cooled in a holding area.*

*Cold steel billets are heated in a reheat furnace to prepare them for rolling. The hot billets are rolled into various steel shapes and prepared for final processing in the rolling mills.*

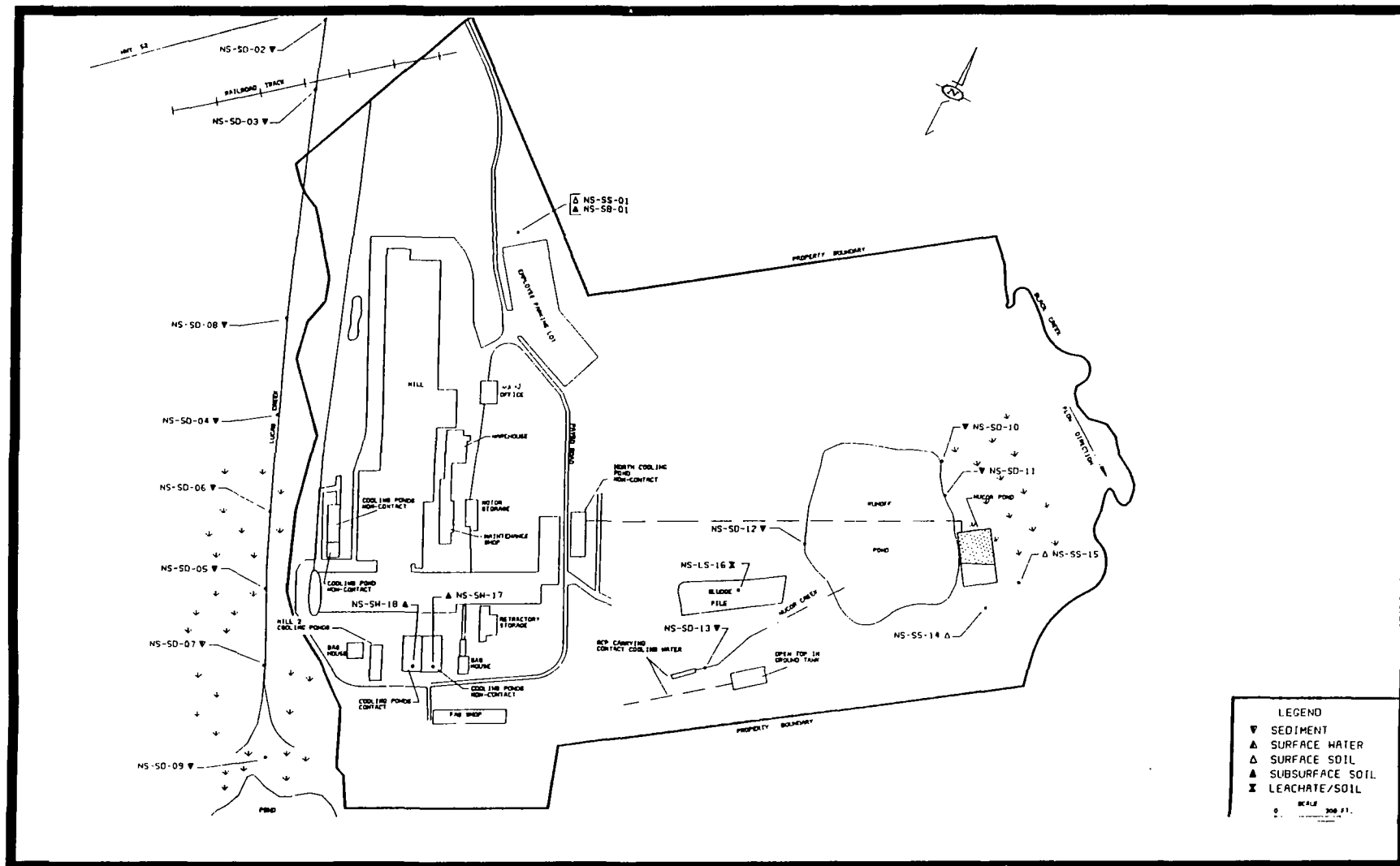


Figure I: Nucor Steel Site Map

In May 1978, Nucor was issued NPDES permit #SC0035238 for discharge of treated sanitary wastewater into Lucas Creek (Ref. 11). The facility was required to monitor monthly for flow, 5-day biological oxygen demand (BOD), total suspended solids (TSS), pH, and fecal coliforms (Ref. 11). In September 1986, Consent Order 86-86-W was issued to Nucor. The order found that compliance and maintenance inspections "indicate unsatisfactory operating conditions and failure to achieve final effluent conditions" and discharge monitoring reports "contained numerous instances of failure to comply with the final effluent criteria" (Ref. 13). Operation of the sanitary waste system was discontinued in 1992, when Nucor tied into the Darlington County Sewer system.

In February 1978, during an inspection of the sanitary wastewater treatment system, SCDHEC officials found other wastewater was discharging to the plant stormdrains and into Lucas Creek (Ref. 14). The discharges consisted of:

1. mill scale drainage at the sedimentation basin near the sanitary wastewater plant
2. a small drain hole from the cooling tower associated with the sedimentation basin
3. a drain from the steam cleaning operation

A letter to SCDHEC in March 1978 stated that the improper discharges would be corrected as follows:

1. Mill scale drainage will flow to a pit where a sump pump will pump it back into the recirculating pond
2. The small drain hole in the cooling tower will be sealed
3. The drain from the steam cleaning operation will go into a pit where settling and evaporation will take place

According to Nucor officials, prior to 1990, cooling water from the #2 mill cooling pond was allowed to flow into Lucas Creek (Ref. 8). During the site reconnaissance and sampling trips (February 18-19, 1993 - reconnaissance, March 9, 1993 - sampling) for this SI, a low flow of water was observed to be discharging from several drainage pipes into Lucas Creek (Ref. 39). One of the pipes was discharging a white-colored liquid (Ref. 39, Appendix A). These pipes are thought to discharge only stormwater; however, no rain had been recorded at the Darlington weather station several days prior to these site visits (Ref. 12).

In September 1985 Nucor was granted an Industrial Waste Permit # IWP-208 for an on-site "inert" landfill (Ref. 16). A November 1984 Application for Permit to Construct listed the wastes to be landfilled as: "broken concrete, excavation dirt, crushed stone, approximately 100 ft<sup>3</sup> per week" (Ref. 17). In December 1988, Nucor officials requested permission to dispose of "mill scale and solid material dredged from the recirculating ponds" at the on-site landfill (Ref. 18). Since that time, the "sludge" dredged from the cooling water ponds has been disposed of in the on-site landfill. Nucor estimates the annual production of grease residue (sludge) at 300 yd<sup>3</sup> per year (Ref. 8). Nucor also states that "this material has not been disposed of in any



offsite location" (Ref. 8). Two known former sludge ponds locations are to the north and south of the fabrication shop (Ref. 39).

Due to construction activities at the site, Nucor has closed the original landfill (IWP-208) and obtained a permit for a new landfill located west of Nucor Pond. The new permit was issued on March 15, 1993 (CWP-041, Cell 1) (Ref. 8). The new permit is limited to the disposal of grease residue, refractories, untreated wood, concrete rubble, clean excavation dirt, crushed stone, and untreated wood ash (Ref. 20). It was noted during the site reconnaissance that a trench (for drainage) was present exiting the new landfill into the floodplain of Black River (Ref. 39).

The air pollution control equipment at Nucor has operated under SCDHEC Bureau of Air Quality Control permit # 0820-0001 since 1985 (Ref. 21). Various modifications have been made to air pollution control systems at the facility since that time (Ref. 22). During this time, violations of the air permit have been recorded, most notably for visible emissions exiting the melt shop areas (Ref. 22). In July 1991, Nucor was issued Consent Order 91-29-A (Ref. 22). This order stated that Nucor failed to submit air monitoring data to SCDHEC within the required time frame. In January 1992, Nucor was issued Consent Order 92-1-A (Ref. 23). This order found "excess visible emissions and other permit condition violations noted herein have resulted in the potentiality of the public being exposed to unacceptable levels of air pollution" (Ref. 23). The consent order required that Nucor either construct a new melt shop with "state of the art" pollution control equipment or refurbish the EAF baghouse systems to comply with applicable State and Federal Regulations. The present construction at the facility will result in an entirely new melt shop and associated equipment. Nucor was issued an Air Quality Control Permit to Construct on April 19, 1993 for the new facility (Ref. 25).

Nucor is not listed as a RCRA treatment, storage, or disposal facility (Ref. 38). Nucor is listed as a hazardous waste generator for the following substances (Ref. 38):

1. Hazardous Waste Solid (Baghouse Dust)  
Waste Code: K061
2. Varsol Solvent Waste  
Waste Code: D001
3. Waste Oil  
Waste Code: 8888
4. Polychlorinated Biphenyls-Capacitors  
Waste Code: 7777
5. Used Refractory  
Waste Code: 7777
6. Hazardous Waste Oil Mixture  
Waste Codes: F001 D006 D007

D. Waste Characteristics

The waste sources used for preparation of this report are as follows:

**Emissions Control Dust** - Emission Control Dust has been disposed of in various locations around the plant site and in at least one off-site location. A 1979 Notification of Hazardous Waste Activity submitted by Nucor estimated production of baghouse dust at 12,000,000 pounds per year (Ref. 6). The form states that the dust was then being disposed of in the county "dump" (Ref. 6). Nucor manifest records indicate that average annual production of baghouse dust (1984 - 1992) is 10,096,576 pounds (Ref. 8). On-site bag-house dust disposal areas have been delineated by consultants for Nucor (Ref. 7). The total area of these on-site disposal areas is approximately 16,675 ft<sup>2</sup> (Ref. 7). The off-site disposal area is estimated to be at least 1000 ft<sup>2</sup> (Ref. 7). A 1976 SCDHEC sample of baghouse dust was found to contain the concentrations shown in Table I below:

Table I: Analysis of baghouse dust June 7, 1976	
Metal	Concentration (ppm)
Cadmium	1600
Chromium	760
Copper	2000
Iron	83500
Lead	32500
Magnesium	13100
Manganese	13000
Mercury	1.02
Nickel	170
Zinc	240000

(Ref. 10)

A 1990 sample of the off-site baghouse dust disposal pile was found to contain the following:

TABLE II: Analysis of Off-site baghouse dust disposal area June 1990	
Metal	Concentration (ppm)
Arsenic	8.6
Cadmium	200
Chromium	290
Copper	710
Lead	14000
Nickel	61
Zinc	60000

(Ref. 7)

For purposes of this report, the more recent analysis will be used to characterize this source. Also, this analysis was from an open disposal area rather than directly from the baghouse.

**Cooling Water Ponds** - Nucor Steel presently has six cooling water ponds, two associated sludge traps, and one common holding pond (Ref. 8). The common holding pond has recently been relocated due to the construction at the site and the former pond was closed in place (Ref. 9). Although three of the six cooling water ponds are known as "clean water ponds", operation of the cooling water system allows mixing and exchange of water between the "clean" and "dirty" ponds. Twice a year, during routine maintenance of the plant, the "dirty" water ponds are gravity-drained to the common holding pond. The grease-dirt residue (sludge) is allowed to settle. According to a letter to SCDHEC from Nucor's consultant, "As the mixture exhibits excellent settling characteristics, the clarified water is then recirculated by pumping back to the clean water pond" (Ref. 9). In addition, during sampling for this SI, the wall separating "clean" and "dirty" cooling water ponds was observed to be less than a foot above water levels in each pond (Ref. 39). For these reasons, the entire area of all cooling water ponds will be used to evaluate this source. Based on cooling water pond sizes provided by Nucor, the total area of all six cooling water ponds, the common holding pond, and sludge traps is 64,797 ft<sup>2</sup> (Ref. 8). Because the sludge material accumulates in these ponds, the sample of sludge (SL-16) will be used to characterize the contents of this waste source.

**Surface Impoundment (Nucor Pond)** - According to reports prepared by consultants for Nucor, both contact and non-contact overflow have been routed to the area known as "Nucor Pond" over the history of the facility (Ref. 7). During the reconnaissance for this SI, contact cooling water was observed to be discharging to the impoundment from a concrete pipe. This flow had been stopped by the date of the sampling trip. The 1990 Preliminary site assessment prepared by General Engineering laboratories for Nucor reports that "The overflow from the non-contact cooling ponds are piped to both Lucas Creek and Nucor Pond" (Ref. 7). The area of Nucor Pond is estimated to be 1 acre (Ref. 7, logbook). Sample SD-12 was taken from the mouth of the impoundment and will be used to characterize the source. Analytical results from this sample are shown below in Table ??.

**Sludge (Grease/-Dirt Mixture)** - This waste will be considered as an unallocated source. Since beginning operations, material dredged from cooling water ponds has been deposited in many areas, including the on-site landfill and several former holding ponds (now buried). Sample SL-16, collected during this Site Investigation from the (now closed) permitted landfill, will be used to characterize the sludge. Analytical results from this sample can be found below in Table III. The sample contained elevated levels of arsenic, barium, chromium, cobalt, copper, manganese, molybdenum, nickel, silver, tin, zinc and PCB 1242. A 1990 sample of sludge analyzed by General Engineering Laboratories for Nucor found "significant concentrations of arsenic, copper, cadmium, chromium, lead, nickel, and zinc" present in the sludge (Ref. 7). This sample was only analyzed for the thirteen priority pollutant metals. Nucor officials have estimated yearly generation of this material to be approximately 300 yd<sup>3</sup> (Ref. 8). Since Nucor has been in operation at this site since 1969, twenty-four years of production at this level will be assumed.

**Fugitive Emissions** - Under present operating conditions, some portion of furnace emissions is not captured by the baghouse collection system. These emissions exit the mill building through the roof vents and openings in the side walls. During the site reconnaissance and sampling trip for this SI, visible emissions were noted from these areas and photographed. The majority of the fugitive emissions seem to occur when the furnace is opened to add additional charges of scrap material. Also, emissions were observed coming directly from the baghouse collection system, during the sampling trip for this SI (Ref. 39). A numerical estimate of fugitive emissions is beyond the scope of this report; however, the source will be evaluated due to its potential impact on surrounding targets. For purposes of this report, a minimal estimate of 1 pound per year fugitive emissions will be considered.

TABLE III: Nucor Steel - Site Investigation  
Waste Source Sampling Results (March 9, 1993)  
All levels in ppm unless noted

*Shaded Cells Represent Significant Detections (over 3X Background)*

Parameter	SS-01 Surface Background	SB-01 Sub-surface Background	SS-14 Drum/Debris Area	SS-15 Debris Area near Black Creek	SD-13 Contact Cooling outfall	SD-12 Nucor Pond Sediment	SD-10 Behind Dike of Pond	SD-11 Behind Dike of Pond	SL-16 Sludge-like material from closed LF
Arsenic	0.7	1.1	8.7	4.0	0.9	21	< 0.5	< 0.5	24
Silver	< 3.0	< 3.0	59	4.5	< 3.0	59	< 3.0	< 3.0	180
Barium	6.3	15	13	14	8.0	21	< 5.0	< 5.0	64
Cadmium	< 1.0	< 1.0	1.3	< 1.0	< 1.0	7.2	< 1.0	< 1.0	1.1
Cobalt	< 2.0	< 2.0	42	2.6	< 2.0	28	< 2.0	< 2.0	29
Chromium	2.2	8.6	190	19	9.7	260	1.1	1.2	290
Copper	2.8	2.6	300	23	20	1000	2.2	< 1.0	900
Manganese	20	12	1800	260	45	2000	12	3.2	4500
Molybdenum	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	32	< 2.0	< 2.0	39
Nickel	< 2.0	3.4	71	8.6	6.0	240	< 2.0	< 2.0	280
Lead	5.5	< 5.0	48	22	< 5.0	200	< 5.0	< 5.0	< 5.0
Tin	< 50	< 50	650	66	< 50	720	< 50	< 50	760
Zinc	59	19	220	150	21	2200	16	11	200
PCB 1242 (ppb)	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	100	< 10.0	< 10.0	299
PCB 1254 (ppb)	< 10.0	< 10.0	< 10.0	19.2	< 10.0	95.8	< 10.0	< 10.0	< 10.0

(Ref. 5)



#### IV. GROUNDWATER PATHWAY

The following geologic units underlie the Nucor site:

<u>Name</u>	<u>Description</u>	<u>Estimated Hydraulic Conductivity</u>	<u>Estimated Depth of Occurrence</u>
Terrace Deposits	Sand, silty sand, and sandy clay	$10^{-4}$ cm/sec	0 - 30 ft.
Black Creek Formation	Sand inter-bedded with silt, clay and sand- stone	$10^{-4}$ cm/sec	30 - 125 ft.
Middendorf Formation	Sand inter-bedded with clay	$10^{-4}$ cm/sec	125 - 350 ft.

The aquifers of concern, which act as a single hydrologic unit, are located within the Terrace Deposits and the Black Creek Formation (Ref. 26). Regional hydrogeologic data indicates that in the vicinity of the Nucor Steel facility the Black Creek Formation overlies a confining unit that likely restricts the downward vertical migration of groundwater into the Middendorf Aquifer. The referenced facility is not in an area of karst topography (Ref. 26).

Water levels in on-site wells indicate the depth to groundwater across the site is between 1 and 25 feet. The predominant shallow groundwater flow direction appears to be to the northeast towards the Black Creek. However, water-level data from monitoring well MW-1 indicates that shallow groundwater beneath the southwestern portion of the site may be flowing to the southwest towards Lucas Creek. A well inventory within the four-mile site radius indicates the following uses of groundwater from the aquifers of concern: industrial, livestock, domestic and public water supply (Ref. 26).

At least ten monitoring wells are located on-site. Analyses indicate that groundwater has been impacted by various metals (Ref. 24). Arsenic, chromium, copper, lead, and nickel have all been found at concentrations above SC maximum contaminant levels (MCLs) in unfiltered samples (Ref. 24). Analyses of filtered groundwater samples have shown levels exceeding MCLs for arsenic and lead (Ref. 23).

Houses counted on U.S.G.S. topographic maps not located in areas with water lines will be assumed to use private drinking water wells. Using 1990 Census Bureau data of 2.76 persons per household for Darlington County, the following Table IV depicts the estimated groundwater use within four miles of Nucor Steel.

TABLE IV: Groundwater Use Within Four Miles of Nucor Steel		
RADII (miles)	PRIVATE SUPPLY	
	Wells	Population
0 - ¼	7	19
> ¼ - ½	6	17
> ½ - 1	16	44
> 1 - 2	82	226
> 2 - 3	113	312
> 3 - 4	210	580
<b>TOTAL:</b>	434	1,198

(Ref. 3,40)

Due to low number of groundwater users in the immediate area surrounding Nucor and the presence of a confining unit restricting deeper aquifer contamination, the groundwater pathway will not be evaluated for this report.

## **V. SURFACE WATER PATHWAY**

### **A. Regional Characteristics**

Nucor Steel is located in the Middle Coastal Plain Region of South Carolina. Streams of this region of the state are more dependent on rainfall and runoff to support stream flow rather than groundwater discharge (Ref. 30). Runoff from southern edge of the site is discharged into Lucas Creek via stormwater pipes from the site (Ref. 39). The northern edge of the site borders the flood plain of Black Creek, and runoff from this area is either discharged into Nucor Pond, or enters the flood plain of Black Creek. North of the equipment storage area, an area of debris (empty drums, construction debris) was found deposited directly into wetlands. Also along the northern edge of the site, a trench has been dug leading from the new on-site landfill, directly into wetlands bordering Black Creek (Ref. 39). For the purposes of this report, the surface water pathway along the southern edge of the site will be evaluated.

From the stormwater discharge pipes, runoff enters Lucas Creek and flows approximately 1500 feet before entering a pond. The pond was privately owned, but is now owned by Nucor (Ref. 29). Lucas Creek continues beyond the pond, flowing approximately 4000 feet before entering Black Creek. Black Creek completes the fifteen mile downstream limit (at Muses Bridge) (Ref. 3). The flow of Lucas Creek can be estimated by using a projected cubic foot per second contribution rate per square mile of drainage area. The projected contribution for this part of the state is approximately 1.4 cfs per square mile of drainage area (Ref. 31). The drainage area of Lucas Creek is approximately 3.5 square miles, giving an estimated flow of 5 cfs (Ref. 3). Black Creek is gauged upgradient of the site near McBee and Hartsville, with flows of 170 and 240 cfs, respectively (Ref. 30). The flow of Black Creek downgradient of the intersection with Lucas Creek is probably within the 100 to 1000 cfs range.

Portions of Nucor property along the northern edge are within the 100 year flood plain (Ref. 32). The 2-year, 24-hour maximum rainfall for the center of Darlington County is 3.8 inches (Ref. 33).

### **B. Targets**

No surface water intakes are located within the fifteen mile downstream segment (Ref. 28). Nucor was using water from the pond along Lucas Creek for construction at the time of this investigation (Ref. 39). No state or federal endangered/threatened species are located within the downstream segment (Ref. 28). The pond along Lucas Creek is a fishery. Fishing line and equipment were observed around the pond during the reconnaissance for this investigation (Ref. 39, Appendix A). Black Creek was included in a 1988 Rivers Assessment, conducted by the South Carolina Water Resources Commission. Black Creek was rated under several categories including:

**Class 2 - Wildlife Habitat River**  
**Class 3 - Recreational Fishing River**  
**Class 3 - Natural Features River**  
**Class 4 - Backcountry Boating River**  
(Ref. 34)

Wetlands are delineated on U.S.G.S topographic maps for the entire northern side of the site. Along the southern edge, Lucas Creek is shown as having only 1500 feet of wetlands prior to the pond (Ref. 3); however, extensive wetlands border the plant along the southern edge, and extend all the way to the pond (Ref. 39, Appendix A). Approximately two miles of wetlands are depicted along Black Creek downgradient of the intersection with Lucas Creek (Ref. 3).

### **C. Analytical Results**

Sediment samples collected for this investigation found significantly elevated concentrations of various metals along Lucas Creek, adjacent to and downgradient of the site. Table VI of this report, is a summary of the results for the samples collected for this investigation.

Samples NS-SD-02 and NS-SD-03 were collected as background/control samples for comparison with downgradient samples. The samples contained naturally occurring metals and PCB 1254 at low concentrations (Ref. 5).

Samples NS-SD-08, NS-SD-04, NS-SD-06, and NS-SD-05 were collected at the discharge point of stormwater pipes. The pipes discharged into Lucas Creek. Several of the pipes were discharging small volumes of water at the time of the sampling investigation. Several of the pipes had large areas of discolored sediment below the pipes (i.e. one of the pipes was discharging a small volume of white colored water during the sampling inspection) (Ref. 39). Numerous metals were found to be significantly elevated in sediment below the pipes. Arsenic was found to be elevated at each location, with a high of 17 ppm. Barium and cadmium were found elevated in NS-SD-06, at concentrations of 77 ppm and 5.1 ppm, respectively. Cobalt was elevated in NS-SD-08 and 06, with a high concentration of 23. Chromium, copper, and manganese were elevated at each location, with highs of 280 ppm, 750 ppm, and 3900 ppm respectively. Molybdenum was elevated in NS-SD-08 and 06, with a high concentration of 24 ppm. Nickel was elevated at NS-SD-08, 04, and 06, with a high of 170 ppm. Lead was elevated at NS-SD-06, with a high of 190. Silver and tin were elevated in NS-SD-08 and 06, with high concentrations of 180 ppm and 560 ppm, respectively. Zinc was elevated in NS-SD-08, 04, and 06, with a high of 1700. PCB's were detected at NS-SD-06 and 05 (Ref. 5).

The sample NS-SD-07 was collected below an area that formerly held a surface impoundment. This area was also below an embankment covered with slag. The sample contained significantly elevated concentrations of arsenic, cobalt, chromium, copper, manganese, molybdenum, nickel, lead, silver, tin, and zinc.

The sample NS-SD-09 was collected from the mouth of the pond along Lucas Creek. An elevated concentration of zinc was detected in this sample.

A statewide study of metal concentrations in rivers and streams was conducted by the National Uranium Resource Evaluation Program in the 1970's (Ref. 35). The county averages for these concentrations was computed to aid in comparison of metal concentrations to background conditions. The following Table V compares the elevated metal concentrations detected in Lucas Creek to these county averages.

The concentrations of PCBs detected in NS-SD-05, 06, and 07 are significant.

**TABLE V: County Average Metal concentrations in Sediment versus Levels detected at Nucor Steel**

County averages from the National Uranium Resource Evaluation Program  
 All results in ppm - NA = data not collected

<b>Parameter</b>	<b>Highest Concentration Detected In Lucas Creek</b>	<b>County Average Concentration</b>	<b>Sample Location</b>
Arsenic	17	NA	NS-SD-08
Barium	77	NA	NS-SD-06
Cadmium	5.1	NA	NS-SD-06
Cobalt	23	6.2	NS-SD-06
Chromium	280	6.9	NS-SD-06
Copper	750	6.46	NS-SD-06
Manganese	3900	153.73	NS-SD-06
Molybdenum	24	7	NS-SD-08
Nickel	170	6.5	NS-SD-06
Lead	190	31.2	NS-SD-06
Silver	180	1.0	NS-SD-08
Tin	560	8.67	NS-SD-06
Zinc	1700	16	NS-SD-06



TABLE VI: Nucor Steel - SI Sediment Sample Results  
Samples taken March 9, 1993  
*Shaded Cells Represent Significant Detections (over 3X Background)*

Parameter	SD-02 Background	SD-03 Background	SD-08	SD-04	SD-06	SD-05	SD-07	SD-09
Arsenic	1.0	0.6	17	7.7	16	3.7	3.4	< 1.0
Barium	20	12	53	22	77	13	9.3	18
Cadmium	< 1.0	< 1.0	1.2	1.3	5.1	< 1.0	2.5	< 1.0
Cobalt	< 2.0	< 2.0	13	4.9	23	< 2.0	7.2	< 2.0
Chromium	4.1	2.3	190	77	280	28	95	4.6
Copper	4.8	1.4	460	190	750	44	220	10
Manganese	20	20	2300	1100	3900	520	920	22
Molybdenum	2.3	< 2.0	24	4.8	23	< 2.0	12	< 2.0
Nickel	< 2.0	< 2.0	120	41	170	4.6	81	2.5
Lead	12	< 5.0	< 5.0	32	190	6.0	97	29
Silver	< 3.0	< 3.0	180	8.0	44	< 3.0	11	< 3.0
Tin	< 50	< 50	370	140	560	< 50	190	< 50
Zinc	25	7.3	760	310	1700	42	630	120
PCB 1242	< 10.0	< 10.0	< 10.0	< 10.0	394	< 10.0	< 10.0	< 10.0
PCB 1248	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	80.2	< 10.0	< 10.0
PCB 1254	13.2	19.3	< 10.0	< 10.0	270	160	19.1	< 10.0
bis(2-e.h.) phthalate	< 300	< 300	< 300	368	1320	< 300	< 300	< 300

(Ref. 5)

## VI. SOIL EXPOSURE PATHWAY

### A. Physical Conditions

Most of the Nucor site is surrounded by a maintained fence. A guard is stationed at the main entrance to the plant, and the plant is in operation 24 hours a day (Ref. 22). Access by nearby residents to areas of contamination on-site are still possible, but are unlikely. Off-site emissions dust disposal areas were not investigated during this investigation, but are a potential route of exposure to nearby residents. Some emissions control dust was used as fill material on-site. Two piles of emission control dust were disposed of in a field near the plant (Ref. 7). This disposal took place in the mid 1970's. The size of the piles is estimated to be approximately 1000 square feet. The distance to the nearest residence is not known, but is probably more than 200 feet based on a map of the disposal location (not to scale). The off-site disposal area is not fenced and is accessible (Ref. 7). The area of the on-site sources available to the soil exposure pathway is as follows:

- |                          |                       |
|--------------------------|-----------------------|
| 1. Emission Control Dust | 16675 ft <sup>2</sup> |
| 2. Landfill              | 32300 ft <sup>2</sup> |

### B. Targets

Nucor Steel employs approximately 500 people (well within the 101 to 1000 range found in Table 5-4 of the HRS) (Ref. 36). The area nearby the site is predominantly rural and agricultural, so the nearby population is limited. The following Table VII outlines the estimated population within four miles of the site:

TABLE VII: Population Estimates within four miles of Nucor Steel * = On-site workers	
On-site	500*
0 to ¼ mile	59
¼ to ½ mile	115
½ to 1 mile	261
1 to 2 miles	1019
2 to 3 miles	261
3 to 4 miles	3823
Grand Total	6122

(Ref. 27)

There is no on-site commercial agriculture, commercial silviculture, or livestock grazing/production. There are no terrestrial sensitive environments on-site (Ref. 28).

### C. Analytical Results

Analysis of surface soil samples collected for this investigation found contamination in several areas on-site. Samples collected from source areas on-site found elevated levels of numerous metals and PCB 1242 and PCB 1254. Arsenic and the PCB's are the only compounds with concentrations that are above health based benchmarks found in the Superfund Chemical Data Matrix for the Soil Exposure Pathway. The highest on-site level for arsenic is 24 ppm (NS-SL-16, from the sludge of the closed out landfill). The Cancer Risk Screening Concentration for arsenic is 0.33 ppm (Ref. 2). The highest concentration of total PCB's found on-site is 0.299 ppm, found in the sludge from the closed out landfill. The Cancer Risk Screening Concentration for PCB's is 0.076 ppm (Ref. 2).

## VII. AIR PATHWAY

For purposes of this report, the only source other than fugitive emissions available to the air pathway are the emissions control dust disposal areas. The population within four miles of the site was discussed in the "Targets" section of the Soil Exposure Pathway in this report. The population estimates in Table VII will also be used for the Air Pathway.

The nearest residence is located approximately within ¼ mile of the site (Ref. 37). A soybean field is located within one-half mile of the site. It will be assumed that the crop is sold commercially. Wetlands are located along the Black Creek and Lucas Creek, as well as in Carolina Bays in the area (Ref. 3). The following Table VIII outlines the estimated amount of wetlands within four miles of the site:

TABLE VIII : Wetlands Area Within Four Miles of Nucor Steel (in acres)	
0 to ¼ mile	24
¼ to ½ mile	16
½ to 1 mile	14
1 to 2 miles	72
2 to 3 miles	93
3 to 4 miles	75

(Ref. 3)

The source that contributes most to the potential to release contaminants is the fugitive emissions. These emissions are discharged directly into the air. During the sampling for this SI, fugitive air emissions were observed discharging from the melt shop. In addition, dust was seen venting from the baghouse in several locations. A film of dust coated storage tanks, hand rails, and other equipment in this area. Photo #27 in Appendix A shows the accumulation of dust on all sides of the oxygen storage tanks (Ref. 39, Appendix A). The emissions control dust generated on-site is listed as a K061 waste, and previous sample data has shown the dust to contain high concentrations of arsenic, cadmium, chromium, copper, lead, nickel, and zinc (Ref. 7). It is not known if the emissions observed during this investigation exceeded the levels permitted by the SCDHEC Bureau of Air Quality Control; however, permit levels have been exceeded in the past (see Operational History Section of this report).

### **VIII. CONCLUSION AND RECOMMENDATIONS**

Since 1969, Nucor Steel has manufactured steel from scrap steel at this facility near Darlington, South Carolina. Waste material such as slag, mill scale, cooling water sludge, sculls, and emission control dust were incorporated into much of the fill material at the site. In addition, emission control dust was disposed of off-site in a nearby field. Site operations have resulted in groundwater, surface-soil, and surface water sediment contamination as documented by sampling performed for this Site Investigation (SI).

Although groundwater has been impacted by operations at the site, the groundwater pathway will not be evaluated due to the low number of nearby private wells and the presence of a confining unit restricting the vertical migration of contamination to deeper aquifers. Wetlands bordering Lucas Creek have shown elevated levels of metals and PCBs. A downstream fishing pond was found to contain an elevated level of zinc. Surficial soil contamination has been documented both on-site and at the off-site emission control dust (baghouse dust) disposal locations.

Due to the impact on nearby wetlands and a downstream fishery, and the potential for exposure to off-site disposal areas, the Nucor Steel site would normally be given a HIGH priority for Hazard Ranking System (HRS) Documentation Package preparation for placement on the National Priorities List (NPL). However, due to the regulatory oversight of several South Carolina Department of Health & Environmental Control (SCDHEC) bureaus, it is recommended that no further Federal Superfund activities be undertaken at the site. The SCDHEC Bureau of Water Pollution Control is currently assessing groundwater quality at the site and addressing the issue of stormwater permitting. The Solid Waste Permitting section of the SCDHEC Bureau of Solid & Hazardous Waste Management has permitted the on-site landfills. The SCDHEC Bureau of Air Quality Control has issued permits and oversees air monitoring for the present facility as well as the new facility under construction. Further assessment/remedial actions should be taken by the appropriate SCDHEC Bureau.

## IX. REFERENCES

Copies attached unless noted

1. Federal Register, 40 CFR Part 300. Hazard Ranking System Final Rule: Figure 3-2. December 14, 1990. Available in Site Screening Section.
2. Superfund Chemical Data Matrix. March 1993. Available in Site Screening Section.
3. United States Geological Survey. Topographical Maps - 7.5 minute series.  
  
Dovesville, S.C. 1963  
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Darlington East, S.C. 1963  
Darlington West, S.C. 1963
4. Waterline maps obtained for:  
City of Darlington  
Darlington County Water  
maps hand-copied onto Reference #1
5. SCDHEC Bureau of Laboratories. Analytical Results of SI sampling at Nucor Steel.. Sampled March 9, 1993. Results released June 9, 1993.
6. SCDHEC Notification of Hazardous Waste Activity submitted by Nucor Steel. December 17, 1979.
7. General Engineering Laboratories, consultant for Nucor Steel. Preliminary Site Assessment. August 14, 1990.
8. J.A. Rutkowski, Nucor Steel. Letter to Jonathan McInnis, SCDHEC responding to information request. August 18, 1993.
9. Andrew R. Tolleson, PE, Applied Technology and Management, Inc., consultant for Nucor. Letter to Carl W. Richardson, SCDHEC Bureau of Water Pollution Control concerning closure of holding pond. January 14, 1993.
10. SCDHEC Water Surveillance and Laboratory Analysis Division. Results of Baghouse dust sample. Collected June 7, 1976.



11. SCDHEC, Bureau of Water Pollution Control. NPDES Permit #SC0035238. First Issued May 1978.
12. SC State Climatologists Office. Record of River and Climatological Observations. Darlington County. February - March 1993.
13. SCDHEC, Bureau of Water Pollution Control. Consent Order 86-86-W. September 1986.
14. Andy Yasinsac, SCDHEC Bureau of Water Pollution Control. Letter to W.E. Dauksch, Nucor noting unpermitted wastewater discharges. February 17, 1978.
15. W.E. Dauksch, Nucor Steel. Letter to Andy Yasinsac, SCDHEC concerning unpermitted discharges and corrections. March 1, 1978.
16. SCDHEC Bureau of Solid & Hazardous Waste Management. Cover letter for IWP-208. Issued September 1985. Entire permit available at SCDHEC.
17. Application for Permit to Construct completed by Nucor. November 16, 1984.
18. Walter E. Postlethwait, Nucor. Letter to April Grunsky, SCDHEC requesting permission to dispose of cooling pond grease-dirt mixture in IWP-208. December 8, 1988.
19. Walter E. Postlethwait, Nucor. Letter to Robert L. Gill, SCDHEC listing waste streams to landfill. October 14, 1992.
20. SCDHEC Landfill Permit # CWP-041 Cell I. Issued March 15, 1993.
21. SCDHEC Bureau of Air Quality Control. Permit # 0820-0001 issued December 18, 1985.
22. SCDHEC Bureau of Air Quality Control files.
23. SCDHEC Bureau of Air Quality Control. Consent Order 92-1-A. January 7, 1992.
24. General Engineering Laboratories. Nucor Steel - Groundwater Assessment Report. October 3, 1991.
25. SCDHEC Bureau of Air Quality Control. Permit # 0820-0001 CG-CR issued April 19, 1993.
26. Marion Feagin, SCDHEC. Hydrogeologic Review of Nucor Steel. August 23, 1993.

27. SCDHEC Environmental Quality Control Administration. GIS Population Estimates within four miles of Nucor Steel.
28. SCDHEC Bureau of Solid & Hazardous Waste Management. Printout detailing surface water uses, endangered species, and groundwater uses near Nucor Steel. February 11, 1993.
29. USEPA Level II Air Inspection. Report. 1990.
30. SC Water Resources Commission. SC State Water Assessment. September 1983. Available in Site Screening Section.
31. Craig Dukes, SCDHEC Site Screening Section. Map of projected cubic feet per second flow contribution per square mile drainage area. Based on 1991 USGS monitoring data. Available in Site Screening Section.
32. National Flood Insurance Program. Darlington County Panel #450060-0110 B June 3, 1991. Available in Site Screening Section.
33. SC Water Resources Commission, State Climatologist. Maximum Rainfall Intensity Data. Undated. Available in Site Screening Section.
34. SC Water Resources Commission. SC Rivers Assessment. Available in Site Screening Section.
35. National Uranium Resource Evaluation Program. Data on metal concentrations in SC sediments. Available in Site Screening Section.
36. Donna Sightler, SCDHEC. ROC with Walter Postlethwait. Nucor.
37. SCDHEC Bureau of Water Pollution Control. Aerial photograph of Nucor Steel. Available at SCDHEC. Photo taken March 1989.
38. SCDHEC Bureau of Solid & Hazardous Waste Management. RCRA Generator printout. August 24, 1993. Available at SCDHEC.
39. Jonathan McInnis, Robert Cole, SCDHEC. Field Logbooks for Nucor Steel Reconnaissance and Sampling Trips. Available at SCDHEC.
40. U.S. Bureau of the Census. General Housing Characteristics, 1990. Available in Site Screening Section.

## APPENDIX A

### NUCOR STEEL SITE INVESTIGATION

#### PHOTOGRAPHS



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 2: Collection of NS-SS-01 looking toward plant. Approximate time - 9:45. First picture taken this date.

*Photo taken by Jonathan McInnis*

Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 3: Collection of NS-SS-15. The area is apparently the fringe of wetlands bordering Black Creek.

Time - 10:45.

*Photo taken by Jonathan McInnis*





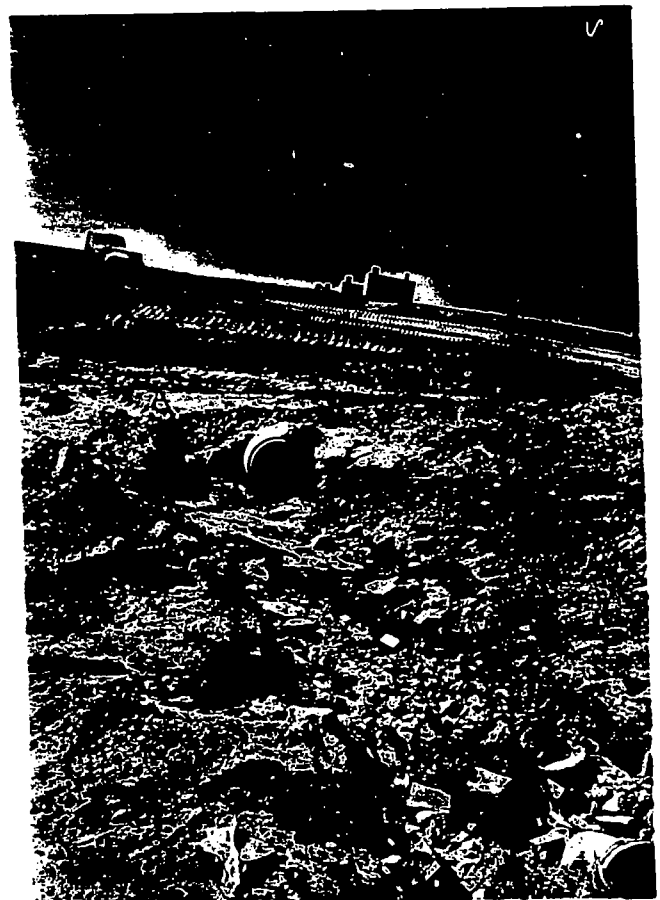
Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 4: Equipment storage area - note discolored soil. Time - 10:55.

*Photo taken by Jonathan McInnis*



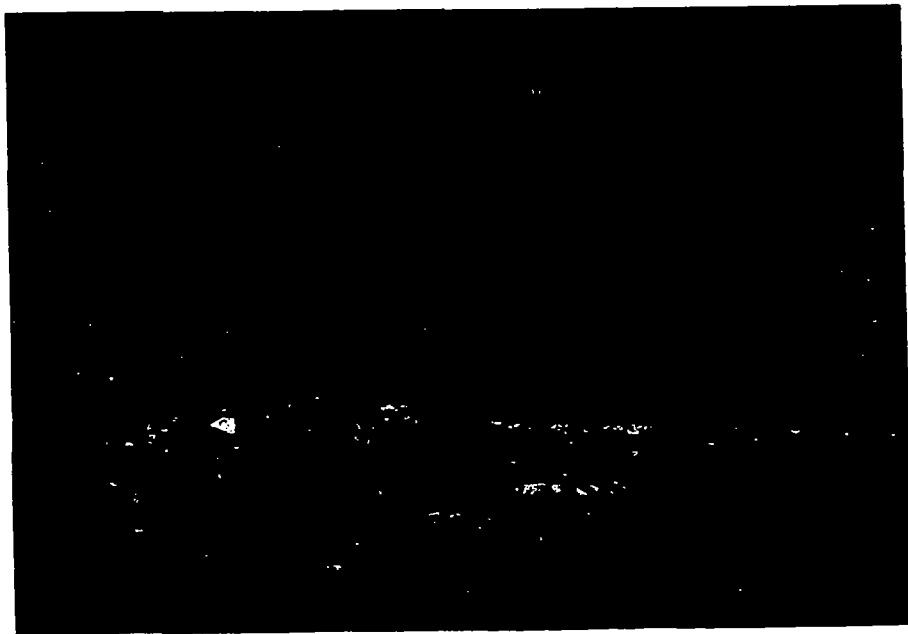
Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 5: Contact cooling water discharge pipe which leads to impoundment. Red flag marks location of NS-SD-13. Time - 11:10

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 6: View of impoundment and slag reprocessing area. Monitoring well #7 orange casing visible in foreground.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 7: View from top of sludge landfill toward concrete impoundment.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 8: Runoff water pathway into impoundment  
showing discolorations.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 9: Location of NS-SD-12 at mouth of  
impoundment. Black, oily, sludge. Time - 11:30.

*Photo taken by Jonathan McInnis*



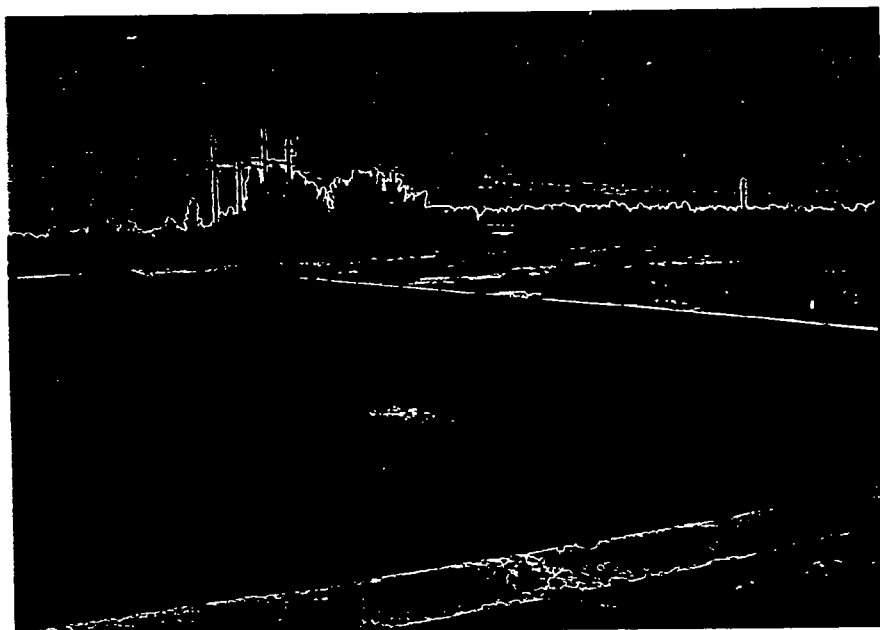
Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 10: Runoff pathway around reprocessing area.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 11: Concrete impoundment with incoming cooling water.

*Photo taken by Jonathan McInnis*





Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 12: Seep area behind dike of impoundment.

Location of NS-SD-10. Time - 12:45.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

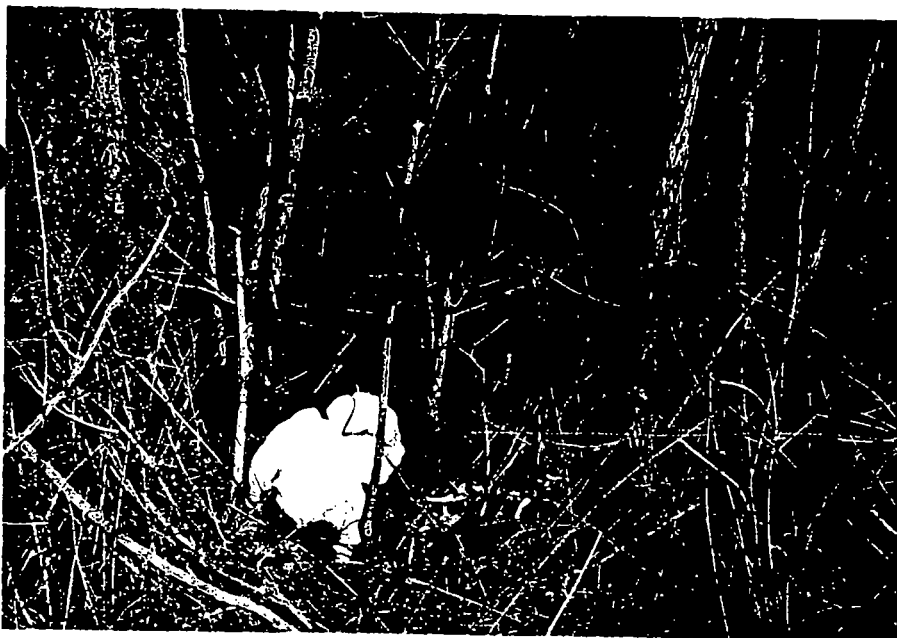
SCD 044 940 369

SI Sampling - March 9, 1993

Photo 13: Seep area behind dike of impoundment.

Location of NS-SD-11. Time 12:45.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 14: Collection of NS-SD-11 from seep area  
behind dike of impoundment. Time 12:50.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 15: Flag marks location of NS-SD-07 in  
wetlands area bordering Lucas Creek. Time 15:25.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County  
 SCD 044 940 369  
 SI Sampling - March 9, 1993  
 Photo 16: Lucas Creek wetlands.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County  
 SCD 044 940 369  
 SI Sampling - March 9, 1993  
 Photo 17: Discharge pipe into Lucas Creek.  
 unknown discharge. Pipe located along retaining  
 wall close to plant building.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County  
 SCD 044 940 369  
 SI Sampling - March 9, 1993  
 Photo 18: Collection of NS-SD-06.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County  
 SCD 044 940 369  
 SI Sampling - March 9, 1993  
 Photo 19: Collection of NS-SD-05 from Lucas  
 Creek.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 20: Mixing of NS-SD-06.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 21: Culvert - location of NS-SD-04.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County  
 SCD 044 940 369  
 SI Sampling - March 9, 1993  
 Photo 22: Collection of NS-SD-04.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County  
 SCD 044 940 369  
 SI Sampling - March 9, 1993  
 Photo 23: Air emissions from mill. Propane storage  
 tank in foreground.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 24: Lucas Creek upstream of Highway 52-401.  
Beaver dam visible mid-picture.

*Photo taken by Jonathan McInnis*



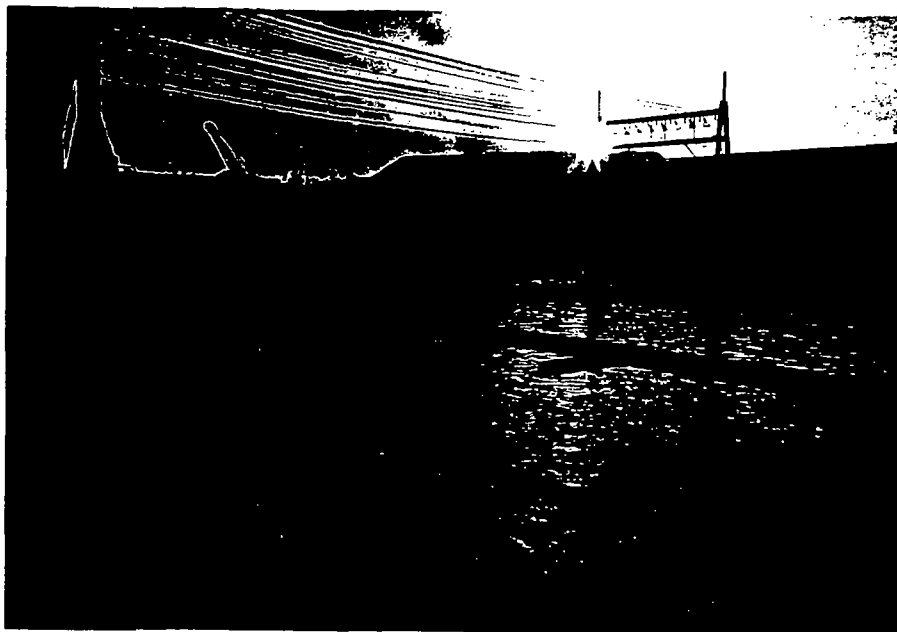
Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 25: Collection of NS-SD-02 taken from  
Highway 52-401 looking East.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 26: Non-contact pond in foreground adjacent to contact cooling pond with aeration. Separated by narrow wall. Non-contact pond - source of NS-SW-17. 17:50

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

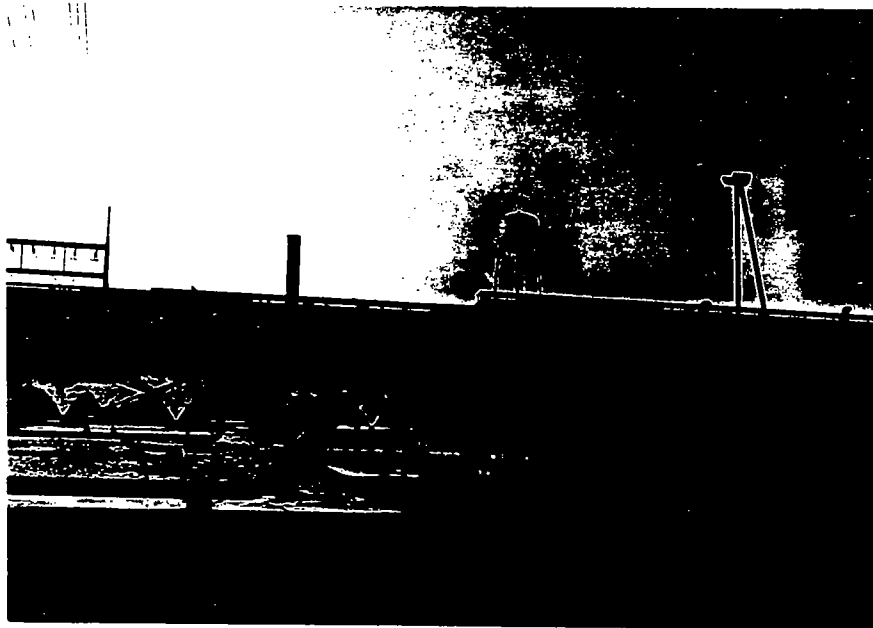
SCD 044 940 369

SI Sampling - March 9, 1993

Photo 27: Showing Air emissions from plant as well as dust accumulated on oxygen tanks.

*Photo taken by Jonathan McInnis*





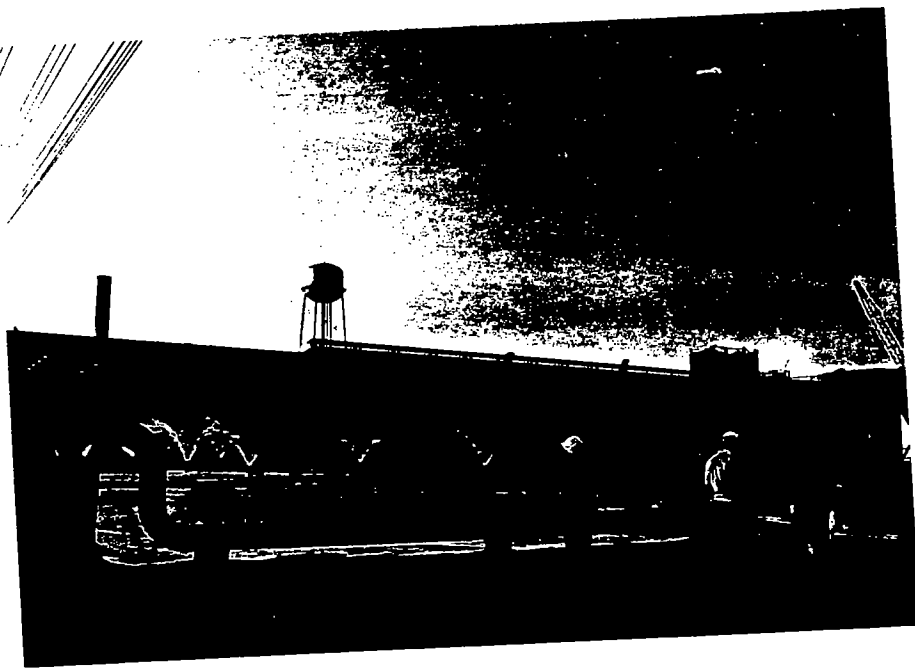
Nucor Steel - Darlington County  
 SCD 044 940 369  
 SI Sampling - March 9, 1993  
 Photo 28: Air emissions from plant.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County  
 SCD 044 940 369  
 SI Sampling - March 9, 1993  
 Photo 29: Air emissions from plant over cooling  
 water ponds.

*Photo taken by Jonathan McInnis*



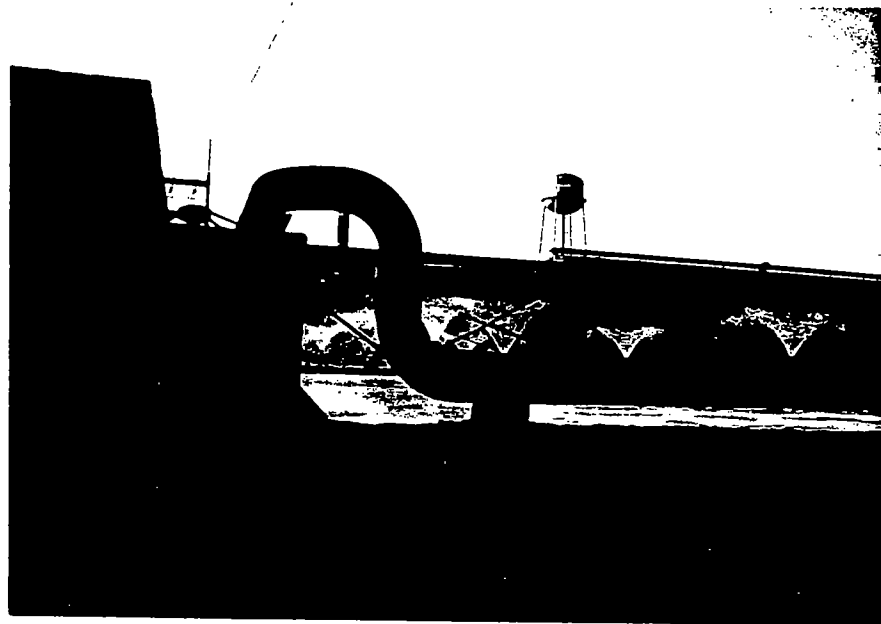
Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 30: Contact cooling water pond. Location of  
NS-SW-18. Time - 18:15

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 31: Side wall of contact cooling water pond  
showing overflow and staining.

*Photo taken by Jonathan McInnis*



Nucor Steel - Darlington County

SCD 044 940 369

SI Sampling - March 9, 1993

Photo 32: Collection of NS-SW-18 with air emissions  
in background.

*Photo taken by Jonathan McInnis*



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

FEB 14 1994

4WD-WPB

John Cresswell, Manager  
Site Screening Section  
South Carolina Department of Health  
and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201

Dear Mr. Cresswell:

On September 30, 1993, you submitted a Site Inspection Prioritization (SIP) report on the Nucor Steel site in Darlington. The State recommendation for the site was No further Remedial Action Planned (NFRAP), even though the site is impacting the groundwater and surface water pathways. Your stated reason for this recommendation was the regulatory oversight of several SCDHEC Bureaus.

As was outlined in Cathy Amoroso's recent letter to you on establishing site priorities, EPA cannot NFRAP a site because of State regulatory oversight; however, EPA may lower the priority on a site if the State has an ongoing or planned response action in effect. The action must address all sources of contamination and pathways of concern at the site, and sufficient resources must be available to complete the action.

You indicated in your cover letter accompanying the SIP report that the Nucor facility operates under several SCDHEC permits, and that the Bureau of Water Pollution Control is assessing groundwater contamination at the site as well as addressing the issue of storm water permitting. In order for me to assign the appropriate priority for further action at Nucor, however, I need more information regarding ongoing or planned response actions to be taken by the State. Please inform me in writing of any such activities, using the guidance provided in Cathy's site prioritization letter. After receiving this information I will make a disposition for further action at the Nucor site.

Thank you for your attention to this request. If you have any questions, please contact me at (404) 347-5065.

Sincerely,

Earl L. Bozeman, Jr.  
Senior Site Assessment Manager

bcc: Cathy Amoroso  
02/10/94 DOC: NUCOR DISK: NORTHUNIT

Bozeman Deihl

ESB

2/11/94

ESB

2/11/94



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

OCT 08 1995

4WD-RCRA

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Joseph A. Rutkowski, Jr.  
Vice President and General Manager  
Nucor Steel  
P.O. Box 525  
Darlington, SC 29532

SUBJ: Proposed Consent Agreement under  
Section 3013 of RCRA, 42 U.S.C. § 6934  
Nucor Steel, Darlington, South Carolina

Dear Mr. Rutkowski:

For the reasons outlined below, the United States Environmental Protection Agency (EPA) is hereby providing Nucor Steel (Nucor) with an opportunity to enter into a negotiated, binding consent agreement under Section 3013 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6934, to ensure that a comprehensive assessment to determine the nature and extent of contamination in Lucas Creek, near the Nucor facility in Darlington, South Carolina, (the facility) will be conducted by Nucor with EPA oversight and approval. If EPA receives no response from you within fifteen (15) days of your receipt of this letter, or if agreement cannot be reached after good faith negotiations within a reasonable time period as determined by EPA, then this offer to enter into a negotiated consent agreement will be withdrawn, and EPA may use other enforcement action as it deems necessary.

EPA has determined that the Nucor facility may be causing harm to human health and the environment due to the past and ongoing release of hazardous waste into Lucas Creek, along the southwest boundary of the facility. This determination has been developed in part from EPA's review of analytical data generated by the South Carolina Department of Health and Environmental Control (SC DHEC) in 1993 which documents the presence of cadmium, chromium, and lead in sediment samples collected from Lucas Creek at concentrations which exceed EPA Region 4 Sediment Screening levels for these metals. In addition, the presence of chromium and lead reported in analyses of edible fish performed by Nucor's consultant in 1993 confirms that these constituents remain available for biological uptake by certain aquatic species in Lucas Creek. Cadmium, chromium, and lead are constituents of

K061 hazardous wastes (emission control dust and sludge from the primary production of steel in electric furnaces) which are generated at the facility, and which were reported by Nucor to have been used in the past as fill material at the site. EPA has also relied on the findings and on-site observations made during EPA's August 22, 1995 site visit in making this determination.

It is EPA's belief that there remains a potential for continuing releases of hazardous waste into Lucas Creek from the facility. These potential releases involve surface runoff from rainfall events coming into contact with fill material made up in part of K061 hazardous waste and draining into Lucas Creek via the facility's storm drainage system. In addition, there are certain fill areas located along the portion of the facility adjoining Lucas Creek which appear to drain directly to the creek, without any controls on runoff. Because of this continuing potential for release, EPA will require, at a minimum, a complete study of the on-site process-related areas which drain into Lucas Creek in order to determine the nature and extent of the substantial hazard presented by the presence of K061 hazardous waste in the fill areas.

Section 3013 of RCRA, 42 U.S.C. § 6934, allows EPA to require the owner or operator of a facility to conduct such monitoring, testing, analysis and reporting as deemed reasonable by EPA to ascertain the nature and extent of the hazard posed by the presence or release of any hazardous waste at a facility. However, since EPA understands that Nucor has initiated steps to conduct monitoring, testing and analysis, EPA believes that a negotiated consent agreement under Section 3013 of RCRA, 42 U.S.C. § 6934, between EPA and Nucor would serve mutual interests and goals.

EPA also acknowledges that Nucor has been working with the SC DHEC Bureau of Water Pollution Control regarding a proposal to conduct a sediment contamination study at Lucas Creek. We have discussed this matter with representatives of the Bureau of Water Pollution Control, as well as with the state RCRA program. EPA anticipates that certain issues concerning surface water, sediment quality and stormwater management will require significant SC DHEC involvement, and intends to incorporate all such comments into discussions with Nucor, as appropriate.

Finally, EPA understands that Nucor is soliciting proposals for conducting a sediment contamination assessment at Lucas Creek. In order to ensure that these proposals are compatible with EPA's goals, we are willing to review them or other workplans before a consent agreement is reached.

As previously stated, if we receive no response from you within fifteen (15) days of your receipt of this letter, or if agreement cannot be reached after good faith negotiations within



a reasonable time period as determined by EPA, then this offer to enter into a negotiated consent agreement will be withdrawn. In addition, we encourage Nucor to meet with EPA as soon as possible to discuss the terms and conditions of the proposed consent agreement. We intend to have a draft consent agreement available for your review in advance of such a meeting.

Please contact Art Smith, of my staff, at (404) 347-3555, voice mail extension 6409, to set up a meeting and if you have any technical questions. Legal inquiries should be directed to Judy Marshall, Assistant Regional Counsel, at (404) 347-3555, extension 2162.

Sincerely,



G. Alan Farmer  
Chief, RCRA Branch  
Waste Management Division

cc: David Graves, SCDHEC Bureau of Water Pollution Control  
Cheryl Coleman, SCDHEC Bureau of Hazardous Waste Management

**Water  
Pollution  
Control**

**STATE OF SOUTH CAROLINA  
MONITORING STRATEGY  
FOR  
FISCAL YEAR 1996**

Technical Report No. 002-95



Bureau of Water Pollution Control



STREAM STATIONS FOR FLORENCE LAB - PRIMARY

STATION	DESCRIPTION	COUNTY LOCATION(S)	STREAM CLASS(ES)
MD-073	SAMPIT RVR OPP AMER CYANAMID CHEM CO	22	SB
MD-075	SAMPIT RVR BTWN MOUTHS OF PORTS CK & PENNY ROYAL CK	22	SB
MD-077	SAMPIT RVR AT US 17	22	SB
MD-080	WINYAH BAY AT JCT OF PEE DEE & WACCAMAW AT MARKER 92	22	SB
MD-087	INTRACOASTAL WTRWAY JUST N OF BRDG ON US 501	26	FW
MD-124	WACCAMAW RVR AT SC 9 7.0 MI W OF CHERRY GROVE	26	FW*
MD-127	INTRACOASTAL WTRWAY AT SC 544 7.5 MI SW OF MYRTLE BEACH	26	FW
MD-138	WACCAMAW RVR AT CHANNEL MARKER 57	22	FW*
MD-146	WACCAMAW RVR & ICWW 1 MI BL JCT-AT BUCKSPORT LANDING	26	FW*
MD-149	WHITES CK 100 YDS UPSTRM OF JCT WITH SAMPIT RVR	22	SB
MD-162	LITTLE RVR AT S END OF ISL DUE E OF TOWN (IN RVR)	26	SA
PD-012	PEE DEE RVR AT US 1 NE CHERAW	35, 13	FW
PD-015	GREAT PEE DEE RVR AT US 15/SC 34	16, 35	FW
PD-021	BLACK CK AT S-16-18 1 MI NNE HARTSVILLE	16	FW*
PD-023	BLACK CK AT S-16-13 5.5 MI NE HARTSVILLE	16	FW*
PD-025	BLACK CK AT S-16-133 2.25 MI NE OF DARLINGTON	16	FW
PD-027	BLACK CK AT S-16-35 5.5 MI SE DARLINGTON	16	FW
PD-028	PEE DEE RVR AT SC 34 11 MI NE DARLINGTON	16, 35	FW
PD-038	LUMBER RVR AT US 76 AT NICHOLS	26, 34	FW
PD-041	LYNCHEs RVR AT US 52 NEAR EFFINGHAM	21	FW
PD-042	LITTLE PEE DEE RVR AT US 501, GALIVANT'S FERRY	26, 34	ORW
PD-043	POCOTALIGO RVR AT S-14-50 9.5 MI NE MANNING	14	FW*
PD-052	LITTLE PEE DEE AT S-34-60	34	FW
PD-061	PEE DEE RVR AT US 701 2.75 MI NE YAUHANNAH	22, 26	FW
PD-065	GULLEY BR AT S-21-13, TIMROD PARK	21	FW
PD-069	LITTLE PEE DEE RVR AT SC 57 11.5 MI NW DILLON	17	FW
PD-071	LYNCHEs RVR AT U.S. 15/SC 34	31	FW
PD-076	GREAT PEE DEE RVR AT US 378	21, 34	FW
PD-091	POCOTALIGO RVR AT US 15 3.5 MI S SUMTER	43	FW*
PD-093	LYNCHEs RIVER AT S-21-55	21	FW
PD-170	BLACK RVR AT SC 51 11.6 MI NE OF ANDREWS	22	FW*
PD-187	SMITH SWP AT US 501 1.9 MI SSE OF MARION	34	FW*
PD-189	LITTLE PEE DEE RVR AT US 378 12 MI W CONWAY	26, 34	ORW
PD-202	POCOTALIGO RVR AT S-43-32 9 MI SSE OF SUMTER	43	FW*
PD-227	BLACK RVR AT S-45-35 8.6 MI NW OF KINGSTREE	45	FW*
PD-281	LYNCHEs RVR AT S-21-49 5 MI NW JOHNSONVILLE	21	FW
PD-319	LYNCHEs RIVER AT SC 403	21, 43	FW
PD-325	BLACK RVR AT S-22-489 4 MI NE GEORGETOWN	22	SA
PD-332	SPARROW SWAMP AT S-21-55 NR JOHNSONS CROSSROADS	21	FW*
PD-337	GREAT PEE DEE RVR AT U.S. 301/76	21	FW
PD-364	LYNCHEs RIVER AT US 401	16, 31	FW
ST-024	LK MARION AT END OF S-14-64 AT CAMP BOB COOPER	14	FW

COUNTY CODE TABLE

01=ABBEVILLE	07=BEAUFORT	13=CHESTERFIELD	19=EDGEFIELD	25=HAMPTON	31=LEE	37=OCONEE	43=SUMTER
02=AIKEN	08=BERKELEY	14=CLARENDON	20=FAIRFIELD	26=HORRY	32=LEXINGTON	38=ORANGEBURG	44=UNION
03=ALLENDALE	09=CALHOUN	15=COLLETON	21=FLORENCE	27=JASPER	33=MCCORMICK	39=PICKENS	45=WILLIAMSBURG
04=ANDERSON	10=CHARLESTON	16=DARLINGTON	22=GEORGETOWN	28=KERSHAW	34=MARION	40=RICHLAND	46=YORK
05=BAMBERG	11=CHEROKEE	17=DILLON	23=GREENVILLE	29=LANCASTER	35=MARLBORO	41=SALUDA	
06=BARNWELL	12=CHESTER	18=DORCHESTER	24=GREENWOOD	30=LAURENS	36=NEWBERRY	42=SPARTANBURG	

SAMPLE STATIONS: FLORENCE

STATION NUMBER	Temp	DO	pH	Salt	Condt	TSS	Turb	Color	Trans	Alkl	Hard	BOD5	NH3 NH4	NO2 NO3	TKN	TP	TOC	Cl	Phen	Metals	Pest PCBs	Other Org*	Fecal Coli	Stage Meas	Sed ***	Sed Org*	SO4	Spec Parm	
PD-014	M	M	M				M					M		M		M							M						
PD-015	M	M	M				M			M	A	M	M	M	M	M	Q			Q			M						
PD-016	M	M	M				M					M		M		M							M						
PD-017A	M	M	M				M					M		M		M							M						
PD-021	M	M	M				M			M	A	M	M	M	M	M	Q			Q			M	M					
PD-023	M	M	M				M			M	A	M	M	M	M	M	Q			Q			M	M					
PD-025	M	M	M				M			M	A	M	M	M	M	M	Q			Q			M	M					
PD-027	M	M	M		M	M	M			M	A	M	M	M	M	M	M			Q	A	A	M	M	A	A			
PD-028	M	M	M		M	M	M			M	A	M	M	M	M	M	M			Q	A	A	M	M	A	A			
PD-029E	M	M	M				M					M		M		M							M						
PD-030	M	M	M				M					M		M		M							M						
PD-030A	M	M	M				M				A	M		M		M				Q			M		A				
PD-031	M	M	M				M					M		M		M							M						
PD-035	M	M	M				M					M		M		M							M						
PD-037	M	M	M				M					M		M		M							M						
PD-038	M	M	M		M	M	M			M	A	M	M	M	M	M	M			Q	A	A	M	M	A	A			
PD-039	M	M	M				M					M		M		M							M						
PD-041	M	M	M				M			M	A	M	M	M	M	M	Q			Q			M	M	A				
PD-042	M	M	M				M			M	A	M	M	M	M	M	Q			Q			M	M					
PD-043	M	M	M				M			M	A	M	M	M	M	M	Q			Q			M	M	A				
PD-044	M	M	M				M					M		M		M							M						
PD-045	M	M	M				M					M		M		M							M						
PD-052	M	M	M				M			M	A	M	M	M	M	M	Q			Q			M	M	A				
PD-055	M	M	M				M					M		M		M							M						
PD-061	M	M	M		M	M	M			M	A	M	M	M	M	M	M	M			Q	A	A	M		A	A		

M=Monthly, Q=Quarterly, A=Annually

\*Base-Neutral and Acid Extractable, and Volatile Organics

\*\*\*Metals, Pesticides and PCBs, Nutrients, etc.

Temp = Temperature

DO = Dissolved Oxygen

TSS = Total Suspended Solids

Phen = Phenols

TKN = Total Kjeldahl Nitrogen

Pest PCBs = Pesticides and PCBs

Spec Parm = Special Parameters

\*\* (Indicated on Summary Sheet)

Salt = Salinity

Condt = Conductivity

Hard = Hardness

Turb = Turbidity

Alkl = Alkalinity

Cl = Chlorides

pH = pH

Color = Color

Trans = Transparency

Alkl = Alkalinity

Other Org = Other Organics

TOC = Total Organic Carbon

NH3 NH4 = Ammonia

NO2 NO3 = Nitrite-Nitrate

Metals = Heavy Metals

TP = Total Phosphorus

Sed = Sediment (Routine)

Sed Org = Sediment BNA & VOC

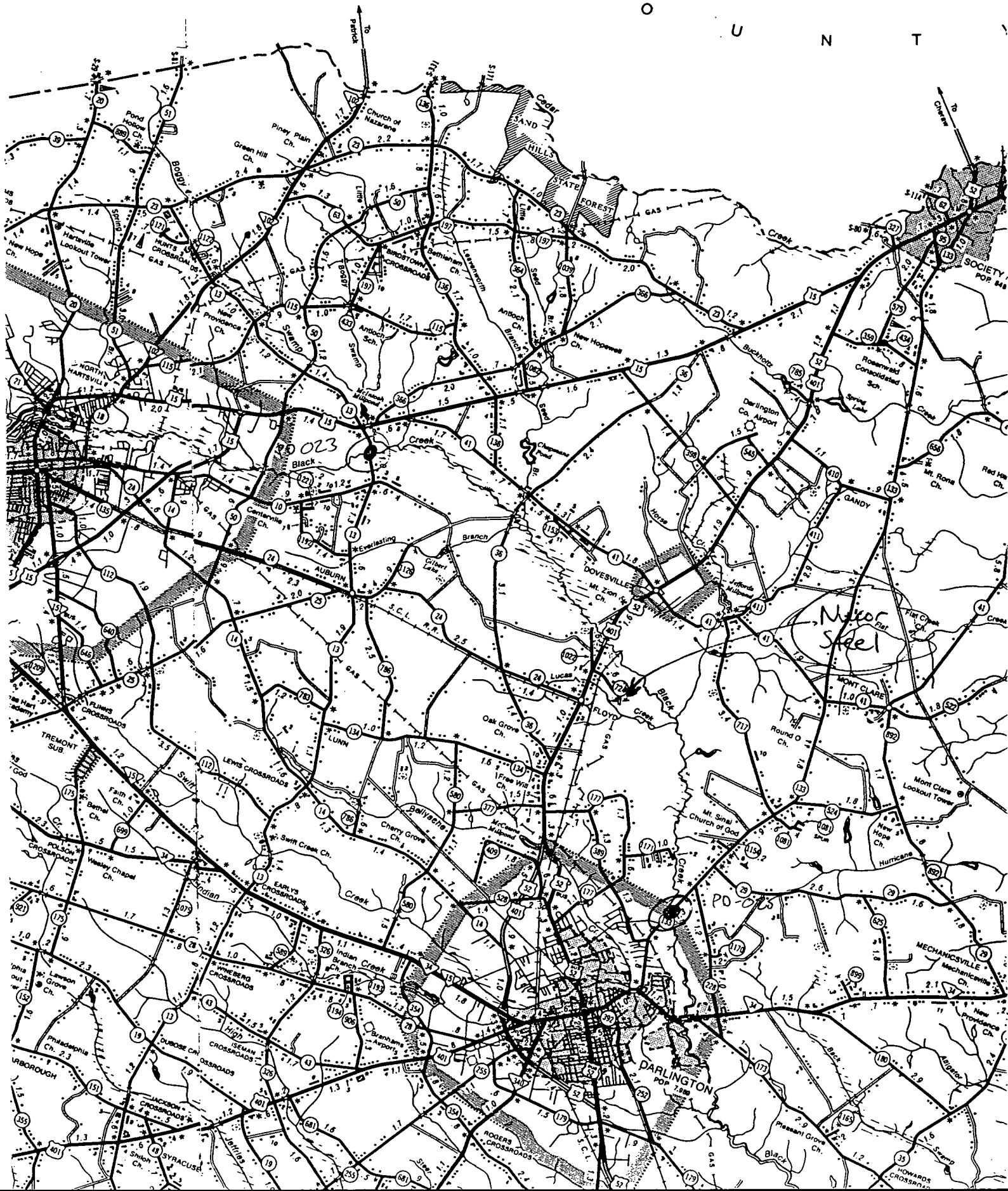
Stage Meas = Tide Stage

BOD5 = 5 Day Biochemical Oxygen Demand

SO4 = Sulfate

Fecal Coli = Fecal Coliform Bacteria

F I E L D C O U N T Y



STREAM: Horse Creek  
COUNTY: Darlington      DATE: 77/07/18  
LOCATION: SR 411, 1.9 akm E Dovesville  
DRAINAGE: Black Creek

# SPECIES: 025  
METHOD: Rotenone

AVG WIDTH(m): 04.6      VELOCITY(m/sec): 0.03  
AVG DEPTH(m): 00.9      FLOW(cms): 00.13  
LENGTH(m): 038.7      FLOW(cfs): 004.5

VISIBILITY(cm): 045      H2O TEMP(C): 26.0  
AIR TEMP(C): 25.0

SUB COVER: undercut banks, logs  
CANOPY: 100% hardwood  
BOTTOM: 90% sand, 10% detritus

D.O.: 05.0      pH: 06.5      TOT HARD: 017.0      TOT ALK: 017.0  
OTHER: CO2: 10 mg/l

AQUATIC VEGETATION: 1% Water shield, 3% Arrow arum, 2% Alligator weed

SPECIES:	0-3"	3-6"	6"+	Total wt.			
Bowfin	0	-	0	-	1	-	56g
American eel	0	-	0	-	2	-	380g
Redfin pickerel	2	-	2	-	0	-	38g
Chain pickerel	1	-	2	-	1	-	58g
Golden shiner	1	-	0	-	0	-	1g
Dusky shiner	6	-	0	-	0	-	6g
Coastal shiner	10	-	0	-	0	-	8g
Creek chubsucker	14	-	0	-	1	-	698g
Spotted sucker	4	-	0	-	0	-	8g
White catfish	1	-	0	-	0	-	1g
Yellow bullhead	16	-	5	-	0	-	144g
Brown bullhead	0	-	0	-	6	-	760g
Tadpole madtom	8	-	0	-	0	-	30g
Margined madtom	6	-	1	-	0	-	30g
Pirate perch	79	-	1	-	0	-	210g
Mosquitofish	1	-	0	-	0	-	1g
Banded pygmy sunfish	3	-	0	-	0	-	3g
Blackbanded sunfish	1	-	0	-	0	-	5g
Bluespotted sunfish	6	-	0	-	0	-	20g

Attachment :

Redbreast sunfish	40	-	6	-	5	-	1,048g
Pumpkinseed	0	-	1	-	1	-	158g
Warmouth	16	-	4	-	0	-	284g
Bluegill	2	-	1	-	0	-	40g
Largemouth bass	28	-	2	-	0	-	168g
Sawcheek darter	1	-	0	-	0	-	2g

Notes: Adjacent land use agriculture and timber. fishing pressure unknown. No point source pollution known. Water levels below normal at time of sample. A mill pond is located about 200 m above the sample site.

STREAM: Everlasting Branch # SPECIES: 019  
COUNTY: Darlington DATE: 77/06/30 METHOD: Rotenone  
LOCATION: Dirt road crossing off SR 36, 5.5 akm WSW Dovesville  
DRAINAGE: Black River

AVG WIDTH(m): 01.7 VELOCITY(m/sec): 00.3  
AVG DEPTH(m): 00.5 FLOW(cms): 00.27  
LENGTH(m): 043.6 FLOW(cfs): 009.6

VISIBILITY(cm): NT H2O TEMP(C): 25.0  
AIR TEMP(C): 24.0

SUB COVER: Undercut banks, vegetation, logs  
CANOPY: 100% hardwood  
BOTTOM: 90% sand, 10% silt

D.O.: 11.0 pH: 06.6 TOT HARD: 025.0 TOT ALK: 025.0  
OTHER: CO2: 10 mg/l

AQUATIC VEGETATION: 50% Bladderwort

SPECIES:

American eel	0	-	1	-	0	-	2g
Chain pickerel	4	-	0	-	0	-	16g
Dusky shiner	4	-	0	-	0	-	6g
Creek chubsucker	0	-	1	-	2	-	179g
Yellow bullhead	213	-	70	-	26	-	4,384g
Tadpole madtom	91	-	2	-	0	-	169g
Margined madtom	18	-	18	-	0	-	334g
Pirate perch	23	-	0	-	0	-	19g
Lined topminnow	3	-	0	-	0	-	2g
Mosquitofish	30	-	0	-	0	-	9g
Banded pygmy sunfish	3	-	0	-	0	-	3g
Redbreast sunfish	2	-	15	-	2	-	853g
Warmouth	45	-	2	-	4	-	717g
Bluegill	3	-	14	-	3	-	1,099g
Longear sunfish	0	-	1	-	0	-	17g
Spotted sunfish	1	-	3	-	0	-	149g
Largemouth bass	0	-	0	-	1	-	285g
Swamp darter	13	-	0	-	0	-	10g
Sawcheek darter	2	-	0	-	0	-	1g

Attachment : Notes: Adjacent land use agricultural. Fishing pressure light-moderate. No point source pollution known. This sample was taken immediately downstream from a large impounded area.

STREAM: Seed Branch  
COUNTY: Darlington      DATE: 77/06/30  
LOCATION: SR 41, 4.3 akm WNW Dovesville  
DRAINAGE: Black Creek

# SPECIES: 014  
METHOD: Rotenone

AVG WIDTH(m): 03.8      VELOCITY(m/sec): 0.24  
AVG DEPTH(m): 00.2      FLOW(cms): 00.24  
LENGTH(m): 057.3      FLOW(cfs): 008.5

VISIBILITY(cm): 070      H2O TEMP(C): 24.0  
AIR TEMP(C): 31.0

SUB COVER: undercut banks, roots, stumps  
CANOPY: 100% hardwood, 90% total stream cover  
BOTTOM: 100% sand

D.O.: 09.0      pH: 06.2      TOT HARD: 010.0      TOT ALK: 000.0  
OTHER: CO2: 8 mg/l

AQUATIC VEGETATION: 8% Alligator weed

SPECIES:

American eel	1	-	1	-	6	-	70g
Redfin pickerel	1	-	0	-	0	-	2g
Dusky shiner	43	-	0	-	0	-	41g
White catfish	1	-	0	-	0	-	3g
Yellow bullhead	15	-	10	-	7	-	710g
Tadpole madtom	1	-	0	-	0	-	2g
Margined madtom	8	-	3	-	1	-	85g
Pirate perch	3	-	0	-	0	-	9g
Redbreast sunfish	12	-	7	-	1	-	358g
Warmouth	3	-	2	-	1	-	265g
Bluegill	1	-	0	-	0	-	6g
Longear sunfish	1	-	0	-	0	-	9g
Largemouth bass	0	-	1	-	0	-	12g
Tessellated darter	1	-	0	-	0	-	3g

Notes: Adjacent land use agricultural. Fishing pressure unknown. No point source pollution known. Water levels normal at time of sample.

STREAM: Leavenworth Branch  
COUNTY: Darlington      DATE: 77/07/14  
LOCATION: SR 366, 6.9 akm NW Dovesville  
DRAINAGE: Seed Branch, Black Creek

# SPECIES: 015  
METHOD: Rotenone

AVG WIDTH(m): 03.0      VELOCITY(m/sec): 0.40  
AVG DEPTH(m): 00.4      FLOW(cms): 00.30  
LENGTH(m): 059.4      FLOW(cfs): 001.2

VISIBILITY(cm):      H2O TEMP(C): ND  
                         AIR TEMP(C):

SUB COVER: undercut banks, stumps  
CANOPY: 100% hardwood  
BOTTOM: 50% sand, 50% muck

D.O.: 07.0      pH: 05.5      TOT HARD: 017.0      TOT ALK: 017.0  
OTHER: CO2: 10 mg/l

AQUATIC VEGETATION: 10% Alligator weed

SPECIES:

American eel	0	-	1	-	1	-	45g
Redfin pickerel	1	-	0	-	1	-	50g
Chain pickerel	2	-	0	-	7	-	1,535g
Dusky shiner	108	-	0	-	0	-	94g
Creek chubsucker	3	-	9	-	5	-	524g
Yellow bullhead	0	-	1	-	5	-	480g
Margined madtom	0	-	2	-	0	-	40g
Pirate perch	numbers not available						20g
Mosquitofish	20	-	0	-	0	-	20g
Mud sunfish	8	-	1	-	0	-	50g
Warmouth	9	-	5	-	1	-	37g
Dollar sunfish	0	-	1	-	0	-	10g
Longear sunfish	0	-	0	-	1	-	25g
Redear sunfish	1	-	0	-	0	-	15g
Tessellated darter	9	-	0	-	0	-	11g

Notes: Adjacent land use agricultural, grazing. Fishing pressure unknown. No point source pollution known. Water levels below normal at time of sample.

STREAM: Black Creek  
COUNTY: Darlington  
LOCATION:  
DRAINAGE: Pee Dee River

DATE:

# SPECIES:  
METHOD:

AVG WIDTH(m) :  
AVG DEPTH(m) :  
LENGTH(m) :  
VELOCITY(m/sec) :  
FLOW(cms) :  
FLOW(cfs) :

VISIBILITY(cm) :  
H2O TEMP(C) :  
AIR TEMP(C) :

SUB COVER:  
CANOPY:  
BOTTOM:

D.O.:  
OTHER:  
pH:  
TOT HARD:  
TOT ALK:

AQUATIC VEGETATION:

SPECIES: 81/06/20: Fish kill: affected area between US 15 bridge to US 52 bridge at Dovesville...150 fish seen dead from power-line to US 15 BP bridge, a distance of 0.8 akm. Distance from power line to CR 13 (kill area) is 3.04 akm. So,  $150/0.5 = x/1.9$ , and estimated mortality is 570 fish. Mostly larger fish comprising 50% spotted suckers, 20% LMB and rest were assorted centrarchids and others. Both Dan Crochet (SCWMRD) and Marion Rembert (DHEC) agreed that their preliminary field observation would be that the fish kill occurred from natural cause.

Carolina Power and Light; 1982 Fish catch summary for the Lake Robinson Location. Data collected for every month of this year except for January and March. On file in the District VII office.

DHEC. 1982. Fish collection: (82/06/08)...Black Creek...

Species	Length(mm)	Weight(grams)
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Black bullhead	291	303
	265	207
	252	189
	248	180
	255	175
Attachment :	227	139
	218	126
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On file in District VII office.

DHEC Primary Stream Monitoring Stations:

PD-021 ... S-16-18, 1.0 am NNE Hartsville  
 PD-023 ... S-16-13, 5.5 am NE Hartsville  
 PD-025 ... S-16-133, 2.25 am NE of Darlington  
 PD-027 ... S-16-35, 5.5 am SE Darlington  
 PD-327 ... S-13-346, 5.0 am E McBee

DHEC Secondary Stream Monitoring Stations:

PD-159 ... S-16-23, 4.7 am NW of Hartsville  
 PD-330 ... Hwy 15 Bypass  
 PD-266 ... Swim area of Atkinson Boat Landing on Lake Robinson off S-16-39  
 PD-268 ... Sonovesta Club Hartsville off dock of Prestwood Lake

Williams Oil Co./Div. of Jackson Oil (Darlington), NPDES #SC0026093. Facility located at 755 S. Fourth St. (adjacent to RR tracks) in Hartsville. One discharge of oil/water separator wastewater from the distribution of petroleum products. Discharge enters ditch beside RR, then to Black Creek.

Attachment :

STREAM: Black Creek  
COUNTY: Chesterfield      DATE: 79/06/07  
LOCATION: SR 410, 9.5 akm ENE Jefferson  
DRAINAGE: Lake Robinson

# SPECIES: 015  
METHOD: Rotenone

AVG WIDTH(m): 06.8      VELOCITY(m/sec): 0.60  
AVG DEPTH(m): 00.8      FLOW(cms): 03.50  
LENGTH(m): 106.7      FLOW(cfs): 124.8

VISIBILITY(cm):      H2O TEMP(C): 21.1  
                         AIR TEMP(C): 23.3

SUB COVER: Undercut banks, deadfall  
CANOPY: 100% hardwood with 90% stream cover  
BOTTOM: 90% sand, 5% gravel, 5% detritus

D.O.: 10.0      pH: 06.5      TOT HARD: 017.0      TOT ALK: 017.0  
OTHER: CO2: 45 mg/l

AQUATIC VEGETATION: None of note

#### SPECIES:

Redfin pickerel	0	-	1	-	0	-	12g
Chain pickerel	3	-	0	-	11	-	743g
Dusky shiner	28	-	0	-	0	-	35g
Fieryblack shiner	34	-	0	-	0	-	128g
Creek chubsucker	0	-	0	-	1	-	95g
Spotted sucker	0	-	0	-	8	-	4,317g
Flat bullhead	1	-	0	-	0	-	2g
Tadpole madtom	2	-	0	-	0	-	3g
Margined madtom	2	-	0	-	1	-	41g
Mud sunfish	1	-	0	-	0	-	tr
Redbreast sunfish	3	-	0	-	1	-	69g
Bluegill	3	-	0	-	0	-	23g
Dollar sunfish	1	-	0	-	0	-	2g
Largemouth bass	0	-	0	-	11	-	510g
Tessellated darter	5	-	0	-	0	-	13g

Notes: Black Creek is typical of blackwater coastal plain streams of the region, and is bordered by productive wetlands along most of its length. It is interrupted twice by major impoundments (Lake Robinson - 910 hectares, Prestwood

#### Attachment :

Lake - 100 hectares). Lake Robinson is the source of cooling water for The H. B. Robinson Steam Electric Plant (nuclear and fossil fuels used) and Prestwood Lake supplies process and cooling water for Sonoco Products Co. There are a number of point source pollutants entering the creek, including 3 mining operations in the upper reaches, the H. B. Robinson Plant, Sonoco Products Co., the city of Hartsville, the City of Darlington, and Fiber Industries below Darlington. Other pollution sources exist, but have not as yet been catalogued in this record.

A Black Creek Protective Association exists and has been instrumental in the improvement of water quality in the creek since 1968 (There have been a number of major, pollution-caused fish kills in the creek in past years -- as late as 1977.).

In and below areas that have had the canopy removed or reduced there are problems with aquatic weeds, most notably alligator weed and smartweed, in some cases making navigation and angling quite difficult. Lake Prestwood is also experiencing a proliferation of nuisance aquatics. Canopy removal, increased

nutrient loads, and shallow water all contribute to the problem in some degree. Several solutions have been offered by interested parties, including the use of *Tilapia zilli*. In 1985, triploid (sterile) grass carp were introduced by the S.C. Water Resources Commission. Results are yet to be seen as of spring, 1986.

Attachment :

The above fish sample is probably not representative because high flows prevented the efficient use of rotenone. Better data available from Enwright (below).

See also:

- Academy of Natural Sciences of Philadelphia. 1973. Stream survey report for the Sonoco Products Co. 99 pp.
- Carolina Power and Light Co. 1976. H. B. Robinson Steam Electric Plant 316 Demonstration, Vol. 2. Raleigh, NC. 238 pp.
- \_\_\_\_\_. 1979. H. B. Robinson Steam Electric Plant Environmental Monitoring Program Results, Vol. 2. New Hill, NC.
- \_\_\_\_\_. 1981. Investigation of Deformities and Lowered Recruitment of Bluegill (*Lepomis macrochirus*) in Robinson Impoundment. New Hill, NC.
- \_\_\_\_\_. Continuing data collection for Robinson Impoundment available via reporting to satisfy requirements for obtaining collecting permits. Portions of the data are available in the Dist. VII office.
- Enwright Associates, Inc. 1977a. Fish Survey of Black Creek. Report to Sonoco Products Co., Hartsville, SC. 37 pp.

Attachment :

- \_\_\_\_\_. 1977b. Assessment of a fish kill on Black Creek, Darlington Co., South Carolina. Report to Sonoco Products Co., Hartsville, SC. 27 pp.
- \_\_\_\_\_. 1980. Fish and Aquatic Macroinvertebrate Survey of Black Creek. Report to Sonoco Products Co., Hartsville, SC.
- Phillips, Hilton A. 1970. Fisheries Investigations in Lakes and streams - Dist. IV. S.S. Wildl. Mar. Resour. Dept. Ann. Prog. Rep., July 1, 1969 - June 30, 1970, F-11-5.
- U. S. Geological Survey. 1976. Basin and Streamflow Characteristics File. Refer to Surface Water Branch Tech. Memo. No. 77.01. This data, which provides info on assorted stream characteristics, is on computer file in USGS office in Columbia, SC.
- Fish kill data available in Dist. VII office for 1968, 1977, 1979, and 1981.

Additional fish data : DHEC BioSTORET file (up to March, 1984) on file in Dist. VII office.

Pageland/Southeast Oxidation Pond: (Chesterfield county), NPDES #SC0021539, 126 N. Pearl Street, Pageland, SC 29728. The facility has one discharge of treated sanitary wastewater, SIC Code 4952. The facility is located on Gum Street in Pageland, SC. Discharge is to Cattail Branch to Big Black Creek. This permit will supersede an existing State permit which expired on June 30, 1982.

Attachment :

Nucor Steel, NPDES #SC0035238. One discharge of sanitary waste from mfg. of angle iron. Plant located 9.6 km N Darlington on U.S. 52. Discharge into Lucas Branch 120' directly behind the rolling mill at Plant site.

Fiber Industries/Palmetto Plant, NPDES#SC0004162. One discharge of process wastewater from mfg. of polyester terephthalate fiber. Facility located on McIver Rd. in Darlington. Discharge enters Black Creek about 850 m north of the plant. Wastewater treatment includes equalization, extended aeration, and final polishing (retention ponds), with a total retention time of about 2 wks. Avg. flow about 0.875 mgd.

DHEC Toxicity test on Fiber Industries/Palmetto Plant, Dec. 12-16, 1982. 96-hr. flow-through revealed no stress or mortality. Potential for chronic toxic impact at low flow conditions (Tech. Rep. No. 003-83).

Sonoco Products Co./Hartsville, NPDES #SC0003042. Facility has 7 discharges of industrial and sanitary wastewater from mfg. of pulp and paper board. Plant located on N. Second St. in Hartsville. Discharges enter Black Creek from 60 m to 1,900 m downstream of the Prestwood Lake dam.

Note: This company has suffered accidental spills directly into Black Creek a

Attachment :

number of times. Reasons for these spills have been varied, but nearly all of them can be directly related to poor housekeeping, lack of adequate containment structures, or to laxity in monitoring. Sonoco cooperates well when a spill occurs, but does as little as possible to prevent spills from occurring. This posture is probably cost-related.

Environmental & Chemical Sciences, Inc. 1985. The Fishes and Macroinvertebrate Fauna of Black Creek, Darlington County, South Carolina. Prepared for Sonoco Products Co. SCDHEC Biological Certification No. 02102. 40 pp.

DHEC. 1982. Fish collection: (82/07/13)...Lake Robinson...

Species	Length(mm)	Weight(grams)
-----	-----	-----
Bluegill	167	092
	182	105
	118	035
	113	025
	115	020
	110	024
	097	012

Attachment :

091	010
087	008
100	010

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On file in District VII office.

Town of Pageland/Water Plant: (Chesterfield county), NPDES #SC0039691, 126 N. Pearl Street, Pageland, SC 29728. The facility has one discharge from filter backwash and settling basin at water treatment plant, SIC Code 4941. The plant is located at 126 N. Pearl Street, Pageland, SC. The discharge enters Black Creek adjacent to the plant.

Carolina Power and Light sampling results in Lake Robinson for 1985. On file in District VII office.

B.V. Hedrick Sand & Gravel Co.: (Chesterfield county), NPDES #SC0040100, P.O. Box 8 #74 East, Lilesville, NC 28091. The facility will have 2 discharges from the process of dredging and cleaning sand, SIC Code 1442. The gravel and sand plant will be located just S of Secondary Road #S-13-683 and W of Secondary

Attachment :

Road #S-13-843 southeast of Pageland. Discharge point #001 will enter Little Black Creek to Big Black Creek and discharge point #002 will enter Thompson Creek to the Great Pee Dee River.

McCord & Steffen, 1986: Fish and Aquatic Macroinvertebrate Survey of Black Creek. Report to Sonoco Products Company, Hartsville, SC on April 1986. Charleston - Manning, South Carolina. SCDHEC Lab ID #10103.

Carolina Power and Light Co. sampling results for 1986 in Lake Robinson. On file in Dist. VII office.

Darlington/Black Creek Plant, NPDES #SC0039624. Facility has one discharge of treated effluent wastewater, SIC 4952. Facility located east of Mont Clare Road (SR 133), NE of City of Darlington. Discharge enters Black Creek.

Milliken/Hartsville Mill (Darlington Co.), NPDES #SC0023507. Facility has one discharge of recirculated non-contact cooling water from the manufacture of yarn. Facility located on Railroad Ave. in Hartsville. Discharge enters Snake

Attachment : Branch to Black Creek.

Town of Hartsville, NPDES #SC0021680. One discharge of treated sanitary wastewater, SIC 4952. Facility located on SR 50, 5 miles east of Hartsville. Discharge enters Black Creek.

Country Club of South Carolina, NPDES SC0028991. One discharge of treated sanitary wastewater, SIC 4952. Facility located on Adams Br., approx. 0.8 miles east of the intersection of SR 24 and SC 325. Discharge enters Adams Br. to Black Creek.

PREscore 2.0 - PRESCORE.TCL File 05/11/93  
HRS DOCUMENTATION RECORD  
Nucor Steel - 10/01/93

PAGE: 1

1. Site Name: Nucor Steel  
(as entered in CERCLIS)
2. Site CERCLIS Number: SCD 044 940 369
3. Site Reviewer: Jonathan G. McInnis
4. Date: August 3, 1993
5. Site Location: Darlington, SC Darlington County  
(City/County,State)
6. Congressional District:
7. Site Coordinates: Single

Latitude: 34°22'20.0"

Longitude: 079°53'45.0"

	Score
Ground Water Migration Pathway Score (Sgw)	3.33
Surface Water Migration Pathway Score (Ssw)	100.00
Soil Exposure Pathway Score (Ss)	2.14
Air Migration Pathway Score (Sa)	1.63

Site Score	50.05
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NOTE

EPA uses the terms "facility," "site," and "release" interchangeably. The term "facility" is broadly defined in CERCLA to include any area where hazardous substances have "come to be located" (CERCLA Section 109(9)), and the listing process is not intended to define or reflect boundaries of such facilities or releases. Site names, and references to specific parcels or properties, are provided for general identification purposes only. Knowledge regarding the extent of sites will be refined as more information is developed during the RI/FS and even during implementation of the remedy.

1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Nucor Pond

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

WASTE QUANTITY  
Nucor Steel - 10/01/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Nucor Pond	
b. Source Type		Surface Impoundment	
c. Secondary Source Type		N.A.	
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	43560.00
e. Source Volume/Area Value		3.35E+03	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		0.00E+00	
i. Data Complete?		NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		3.35E+03	

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Arsenic	< 2	NO	2.1E+01	ppm
Cadmium	< 2	NO	7.2E+00	ppm
Chromium	< 2	NO	2.6E+02	ppm
Cobalt	< 2	NO	2.8E+01	ppm
Copper	< 2	NO	1.0E+03	ppm
Lead	< 2	NO	2.0E+02	ppm
Manganese	< 2	NO	2.0E+03	ppm
Nickel	< 2	NO	2.4E+02	ppm
Silver	< 2	NO	5.9E+01	ppm
Zinc	< 2	NO	2.2E+03	ppm



WASTE QUANTITY  
Nucor Steel - 10/01/93

## 1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Emission Dust piles

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

WASTE QUANTITY  
Nucor Steel - 10/01/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Emission Dust piles	
b. Source Type		Waste Pile	
c. Secondary Source Type		N.A.	
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	501.00
e. Source Volume/Area Value		3.85E+01	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		0.00E+00	
i. Data Complete?		NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		3.85E+01	

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Arsenic	< 2	NO	8.6E+00	ppm
Cadmium	< 2	NO	2.0E+02	ppm
Chromium	< 2	NO	2.9E+02	ppm
Copper	< 2	NO	7.1E+02	ppm
Lead	< 2	NO	1.4E+04	ppm
Nickel	< 2	NO	6.1E+01	ppm
Zinc	< 2	NO	6.0E+04	ppm

1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Unallocated Sludge

a. Wastestream ID	Sludge
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	14400000.00
e. Data Complete?	YES
f. Wastestream Quantity Value (W/5,000)	2.88E+03

WASTE QUANTITY  
Nucor Steel - 10/01/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Unallocated Sludge	
b. Source Type		Surface Impoundment	
c. Secondary Source Type		N.A.	
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	0.00
e. Source Volume/Area Value		0.00E+00	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		2.88E+03	
i. Data Complete?		YES	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		2.88E+03	

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Arsenic	< 2	NO	2.4E+01	ppm
PCBs	< 2	NO	3.0E-01	ppm

WASTE QUANTITY  
Nucor Steel - 10/01/93

## 1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Cooling Water Ponds

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

WASTE QUANTITY  
Nucor Steel - 10/01/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Cooling Water Ponds	
b. Source Type		Surface Impoundment	
c. Secondary Source Type		N.A.	
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	64797.00
e. Source Volume/Area Value		4.98E+03	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		0.00E+00	
i. Data Complete?		NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		4.98E+03	

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Arsenic	< 2	NO	0.0E+00	ppm
Barium	< 2	NO	0.0E+00	ppm
Chromium	< 2	NO	0.0E+00	ppm
Cobalt	< 2	NO	0.0E+00	ppm
Copper	< 2	NO	0.0E+00	ppm
Lead	< 2	NO	0.0E+00	ppm
Manganese	< 2	NO	0.0E+00	ppm
Nickel	< 2	NO	0.0E+00	ppm
Silver	< 2	NO	0.0E+00	ppm
Zinc	< 2	NO	0.0E+00	ppm

WASTE QUANTITY  
Nucor Steel - 10/01/93

## 1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Fugitive Emissions

a. Wastestream ID	Fug. Emissions
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	24.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	4.80E-03

Wastestream Constituent  
Hazardous Substances

	Concent.	Units	Liquid	Qualifier
Arsenic	0.0E+00	ppb	NO	
Cadmium	0.0E+00	ppb	NO	
Chromium	0.0E+00	ppb	NO	
Copper	0.0E+00	ppb	NO	
Lead	0.0E+00	ppb	NO	
Zinc	0.0E+00	ppb	NO	

WASTE QUANTITY  
Nucor Steel - 10/01/93

## 2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Fugitive Emissions	
b. Source Type		Drums	
c. Secondary Source Type		N.A.	
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	0.00
e. Source Volume/Area Value		0.00E+00	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		4.80E-03	
i. Data Complete?		NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		4.80E-03	



## WASTE QUANTITY

Nucor Steel - 10/01/93

## 3. SITE HAZARDOUS WASTE QUANTITY SUMMARY

No. Source ID	Migration Pathways	Vol. or Area Value (2e)	Constituent or Wastestream Value (2f,2h)	Hazardous Waste Qty. Value (2k)
1 Nucor Pond	GW-SW	3.35E+03	0.00E+00	3.35E+03
1 Emission Dust piles	GW-SW-SE-A	3.85E+01	0.00E+00	3.85E+01
2 Unallocated Sludge	GW-SW-SE-A	0.00E+00	2.88E+03	2.88E+03
3 Cooling Water Ponds	GW-SW	4.98E+03	0.00E+00	4.98E+03
4 Fugitive Emissions	A	0.00E+00	4.80E-03	4.80E-03

WASTE QUANTITY  
Nucor Steel - 10/01/93

## 4. PATHWAY HAZARDOUS WASTE QUANTITY AND WASTE CHARACTERISTICS SUMMARY TABLE

Migration Pathway	Contaminant Values	HWQVs*	WCVs**
Ground Water	Toxicity/Mobility 1.00E+04	10000	100
SW: Overland Flow, DW	Tox./Persistence 1.00E+04	10000	100
SW: Overland Flow, HFC	Tox./Persis./Bioacc. 5.00E+08	10000	1000
SW: Overland Flow, Env	Etox./Persis./Bioacc. 5.00E+08	10000	1000
SW: GW to SW, DW	Tox./Persistence 1.00E+04	10000	100
SW: GW to SW, HFC	Tox./Persis./Bioacc. 5.00E+07	10000	560
SW: GW to SW, Env	Etox./Persis./Bioacc. 5.00E+07	10000	560
Soil Exposure:Resident	Toxicity 1.00E+04	100	32
Soil Exposure: Nearby	Toxicity 1.00E+04	100	32
Air	Toxicity/Mobility 2.00E+02	100	10

\* Hazardous Waste Quantity Factor Values

\*\* Waste Characteristics Factor Category Values

Note: SW = Surface Water  
 GW = Ground Water  
 DW = Drinking Water Threat  
 HFC = Human Food Chain Threat  
 Env = Environmental Threat

GROUND WATER MIGRATION PATHWAY Factor Categories & Factors	Maximum Value	Value Assigned
Likelihood of Release to an Aquifer Aquifer: Single Hydrologic Un		
1. Observed Release	550	550
2. Potential to Release		
2a. Containment	10	10
2b. Net Precipitation	10	0
2c. Depth to Aquifer	5	5
2d. Travel Time	35	35
2e. Potential to Release [lines 2a(2b+2c+2d)]	500	400
3. Likelihood of Release	550	550
Waste Characteristics		
4. Toxicity/Mobility	*	1.00E+04
5. Hazardous Waste Quantity	*	10000
6. Waste Characteristics	100	100
Targets		
7. Nearest Well	50	0.00E+00
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	0.00E+00
8d. Population (lines 8a+8b+8c)	**	0.00E+00
9. Resources	5	5.00E+00
10. Wellhead Protection Area	20	0.00E+00
11. Targets (lines 7+8d+9+10)	**	5.00E+00
12. Targets (including overlaying aquifers)	**	5.00E+00
13. Aquifer Score	100	3.33
GROUND WATER MIGRATION PATHWAY SCORE (Sgw)	100	3.33

\* Maximum value applies to waste characteristics category.  
\*\* Maximum value not applicable.

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors DRINKING WATER THREAT	Maximum Value	Value Assigned
Likelihood of Release		
1. Observed Release	550	550
2. Potential to Release by Overland Flow		
2a. Containment	10	10
2b. Runoff	25	2
2c. Distance to Surface Water	25	25
2d. Potential to Release by Overland Flow [lines 2a(2b+2c)]	500	270
3. Potential to Release by Flood		
3a. Containment (Flood)	10	10
3b. Flood Frequency	50	7
3c. Potential to Release by Flood (lines 3a x 3b)	500	70
4. Potential to Release (lines 2d+3c)	500	340
5. Likelihood of Release	550	550
Waste Characteristics		
6. Toxicity/Persistence	*	1.00E+04
7. Hazardous Waste Quantity	*	10000
8. Waste Characteristics	100	100
Targets		
9. Nearest Intake	50	0.00E+00
10. Population		
10a. Level I Concentrations	**	0.00E+00
10b. Level II Concentrations	**	0.00E+00
10c. Potential Contamination	**	0.00E+00
10d. Population (lines 10a+10b+10c)	**	0.00E+00
11. Resources	5	5.00E+00
12. Targets (lines 9+10d+11)	**	5.00E+00
13. DRINKING WATER THREAT SCORE	100	3.33

\* Maximum value applies to waste characteristics category.  
 \*\* Maximum value not applicable.

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors HUMAN FOOD CHAIN THREAT	Maximum Value	Value Assigned
Likelihood of Release		
14. Likelihood of Release (same as line 5)	550	550
Waste Characteristics		
15. Toxicity/Persistence/Bioaccumulation	*	5.00E+08
16. Hazardous Waste Quantity	*	10000
17. Waste Characteristics	1000	1000
Targets		
18. Food Chain Individual	50	2.00E+01
19. Population		
19a. Level I Concentrations	**	0.00E+00
19b. Level II Concentrations	**	0.00E+00
19c. Pot. Human Food Chain Contamination	**	3.30E-04
19d. Population (lines 19a+19b+19c)	**	3.30E-04
20. Targets (lines 18+19d)	**	2.00E+01
21. HUMAN FOOD CHAIN THREAT SCORE	100	100.00

\* Maximum value applies to waste characteristics category.  
 \*\* Maximum value not applicable.

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors ENVIRONMENTAL THREAT	Maximum Value	Value Assigned
Likelihood of Release		
22. Likelihood of Release (same as line 5)	550	550
Waste Characteristics		
23. Ecosystem Toxicity/Persistence/Bioacc.	*	5.00E+08
24. Hazardous Waste Quantity	*	10000
25. Waste Characteristics	1000	1000
Targets		
26. Sensitive Environments		
26a. Level I Concentrations	**	0.00E+00
26b. Level II Concentrations	**	2.50E+01
26c. Potential Contamination	**	0.00E+00
26d. Sensitive Environments	**	2.50E+01
(lines 26a+26b+26c)		
27. Targets (line 26d)	**	2.50E+01
28. ENVIRONMENTAL THREAT SCORE	60	60.00
29. WATERSHED SCORE	100	100.00
30. SW: OVERLAND/FLOOD COMPONENT SCORE (Sof)	100	100.00

\* Maximum value applies to waste characteristics category.  
 \*\* Maximum value not applicable.

GROUND WATER TO SURFACE WATER MIGRATION COMPONENT Factor Categories & Factors DRINKING WATER THREAT	Maximum Value	Value Assigned
Likelihood of Release to Aquifer Aquifer: Single Hydrologic Un		
1. Observed Release	550	550
2. Potential to Release		
2a. Containment	10	10
2b. Net Precipitation	10	0
2c. Depth to Aquifer	5	5
2d. Travel Time	35	35
2e. Potential to Release [lines 2a(2b+2c+2d)]	500	400
3. Likelihood of Release	550	550
Waste Characteristics		
4. Toxicity/Mobility/Persistence	*	1.00E+04
5. Hazardous Waste Quantity	*	10000
6. Waste Characteristics	100	100
Targets		
7. Nearest Intake	50	0.00E+00
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	0.00E+00
8d. Population (lines 8a+8b+8c)	**	0.00E+00
9. Resources	5	5.00E+00
10. Targets (lines 7+8d+9)	**	5.00E+00
11. DRINKING WATER THREAT SCORE	100	3.33

\* Maximum value applies to waste characteristics category.  
\*\* Maximum value not applicable.

GROUND WATER TO SURFACE WATER MIGRATION COMPONENT Factor Categories & Factors HUMAN FOOD CHAIN THREAT	Maximum Value	Value Assigned
Likelihood of Release		
12. Likelihood of Release (same as line 3)	550	550
Waste Characteristics		
13. Toxicity/Mobility/Persistence/Bioacc.	*	5.00E+07
14. Hazardous Waste Quantity	*	10000
15. Waste Characteristics	1000	560
Targets		
16. Food Chain Individual	50	0.00E+00
17. Population		
17a. Level I Concentrations	**	0.00E+00
17b. Level II Concentrations	**	0.00E+00
17c. Pot. Human Food Chain Contamination	**	0.00E+00
17d. Population (lines 17a+17b+17c)	**	0.00E+00
18. Targets (lines 16+17d)	**	0.00E+00
19. HUMAN FOOD CHAIN THREAT SCORE	100	0.00

\* Maximum value applies to waste characteristics category.  
\*\* Maximum value not applicable.



GROUND WATER TO SURFACE WATER MIGRATION COMPONENT Factor Categories & Factors ENVIRONMENTAL THREAT	Maximum Value	Value Assigned
Likelihood of Release		
20. Likelihood of Release (same as line 3)	550	550
Waste Characteristics		
21. Ecosystem Tox./Mobility/Persist./Bioacc.	*	5.00E+07
22. Hazardous Waste Quantity	*	10000
23. Waste Characteristics	1000	560
Targets		
24. Sensitive Environments		
24a. Level I Concentrations	**	0.00E+00
24b. Level II Concentrations	**	0.00E+00
24c. Potential Contamination	**	0.00E+00
24d. Sensitive Environments (lines 24a+24b+24c)	**	0.00E+00
25. Targets (line 24d)	**	0.00E+00
26. ENVIRONMENTAL THREAT SCORE	60	0.00
27. WATERSHED SCORE	100	3.33
28. SW: GW to SW COMPONENT SCORE (Sgs)	100	3.33

\* Maximum value applies to waste characteristics category.  
\*\* Maximum value not applicable.

SOIL EXPOSURE PATHWAY Factor Categories & Factors RESIDENT POPULATION THREAT	Maximum Value	Value Assigned
Likelihood of Exposure		
1. Likelihood of Exposure	550	550
Waste Characteristics		
2. Toxicity	*	1.00E+04
3. Hazardous Waste Quantity	*	100
4. Waste Characteristics	100	32
Targets		
5. Resident Individual	50	0.00E+00
6. Resident Population		
6a. Level I Concentrations	**	0.00E+00
6b. Level II Concentrations	**	0.00E+00
6c. Resident Population (lines 6a+6b)	**	0.00E+00
7. Workers	15	1.00E+01
8. Resources	5	0.00E+00
9. Terrestrial Sensitive Environments	***	0.00E+00
10. Targets (lines 5+6c+7+8+9)	**	1.00E+01
11. RESIDENT POPULATION THREAT SCORE	**	1.76E+05

\* Maximum value applies to waste characteristics category.

\*\* Maximum value not applicable.

\*\*\* No specific maximum value applies, see HRS for details.

SOIL EXPOSURE PATHWAY Factor Categories & Factors NEARBY POPULATION THREAT	Maximum Value	Value Assigned
Likelihood of Exposure		
12. Attractiveness/Accessibility	100	1.00E+01
13. Area of Contamination	100	2.00E+01
14. Likelihood of Exposure	500	5.00E+00
Waste Characteristics		
15. Toxicity	*	1.00E+04
16. Hazardous Waste Quantity	*	100
17. Waste Characteristics	100	32
Targets		
18. Nearby Individual	1	1.00E+00
19. Population Within 1 Mile	**	4.00E-01
20. Targets (lines 18+19)	**	1.40E+00
21. NEARBY POPULATION THREAT SCORE	**	2.24E+02
SOIL EXPOSURE PATHWAY SCORE (Ss)	100	2.14

\* Maximum value applies to waste characteristics category.  
 \*\* Maximum value not applicable.

AIR MIGRATION PATHWAY Factor Categories & Factors	Maximum Value	Value Assigned
Likelihood of Release		
1. Observed Release	550	0
2. Potential to Release		
2a. Gas Potential to Release	500	0
2b. Particulate Potential to Release	500	170
2c. Potential to Release	500	170
3. Likelihood of Release	550	170
Waste Characteristics		
4. Toxicity/Mobility	*	2.00E+02
5. Hazardous Waste Quantity	*	100
6. Waste Characteristics	100	10
Targets		
7. Nearest Individual	50	2.00E+01
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	5.60E+01
8d. Population (lines 8a+8b+8c)	**	5.60E+01
9. Resources	5	0.00E+00
10. Sensitive Environments		
10a. Actual Contamination	***	0.00E+00
10b. Potential Contamination	***	3.00E+00
10c. Sens. Environments(lines 10a+10b)	***	3.00E+00
11. Targets (lines 7+8d+9+10c)	**	7.90E+01
AIR MIGRATION PATHWAY SCORE (Sa)	100	1.63E+00

\* Maximum value applies to waste characteristics category.

\*\* Maximum value not applicable.

\*\*\* No specific maximum value applies, see HRS for details.

U.S. EPA REGION IV

# SDMS

## Unscannable Material Target Sheet

DocID: 10705971

Site ID: SCD044940369

Site Name: Duca Steel

### Nature of Material:

Map:

☒

Computer Disks:

☐

Photos:

☐

CD-ROM:

☐

Blueprints:

☐

Oversized Report:

☐

Slides:

☐

Log Book:

☐

Other (describe):

Radius Map

Amount of material:

\* Please contact the appropriate Records Center to view the material \*



\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930445  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

WEDNESDAY MAY 26TH, 1993  
 RELEASE DATE : 05/26/93 11:18:21  
 DT COLLECTED : 03/09/93 15:45:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-05

ANALYSIS STORET RESULT

ARSENIC MG/KG	01003	3.7
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34539	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
1-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300



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ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
HRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300

SILVER MG/KG	<3.0
ALUMINUM MG/KG	1100
BARIUM MG/KG	13
BERYLLIUM MG/KG	<0.3
CADMIUM MG/KG	<1.0
COBALT MG/KG	<2.0
CHROMIUM MG/KG	23
COPPER MG/KG	44
MANGANESE MG/KG	520
MOLYBDENUM MG/KG	<2.0
NICKEL MG/KG	4.6
LEAD MG/KG	6.0
ANTIMONY MG/KG	<3.0



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ANALYSIS

STORET RESULT

PAGE 3

TIN MG/KG		<50
THALLIUM MG/KG		<50
VANADIUM MG/KG		<2.0
ZINC MG/KG		42
MERCURY MG/KG	71921	<0.25
PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	80.2
PCB 1254 UG/KG	39507	160
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0
ELENIUM MG/KG	01143	<0.5
BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0

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ANALYSIS

STORET RESULT

PAGE 4

METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0

COMMENTS:

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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SAMPLE NUMBER : 0310930446  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

WEDNESDAY JUNE 9TH, 1993  
 RELEASE DATE : 06/09/93 13:29:53  
 DT COLLECTED : 03/09/93 15:45:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-04

ANALYSIS STORET RESULT

ARSENIC MG/KG	01003	7.7
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
4-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78863	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34334	<300
4-NITROANILINE UG/KG	78870	<300
AZO BENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
HRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	368
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEPTANE,2,3-DIMETHYL-		DETECTED
HEXANE,2,3,4-TRIMETHYL-		DETECTED
OCTANE,3-METHYL-		DETECTED
CYCLOHEXANE,1-METHYL-2-PROPYL-		DETECTED
DECANE		DETECTED
CYCLOHEXANE,BUTYL-		DETECTED
NONANE,5-(1-METHYLPROPYL)-		DETECTED
NAPHTHALENE,DECAHYDRO-		DETECTED
CYCLOHEXANE,PENTYL-		DETECTED

SILVER MG/KG	8.0
ALUMINUM MG/KG	1700
BARIUM MG/KG	22
BERYLLIUM MG/KG	<0.3

\*\*\*\*\*  
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WEDNESDAY JUNE 9TH, 1993  
 RELEASE DATE : 06/09/93 13:29:53  
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 STATION CODE : SD-04

ANALYSIS

STORET RESULT

PAGE 3

CADMIUM MG/KG		1.5
COBALT MG/KG		4.9
CHROMIUM MG/KG		77
COPPER MG/KG		190
MANGANESE MG/KG		1100
MOLYBDENUM MG/KG		4.8
NICKEL MG/KG		41
LEAD MG/KG		32
ANTIMONY MG/KG		<5.0
TIN MG/KG		140
THALLIUM MG/KG		<50
VANADIUM MG/KG		<2.0
ZINC MG/KG		310

MERCURY MG/KG	71921	<0.25
---------------	-------	-------

PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	<10.0
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0

SELENIUM MG/KG	01148	<0.5
----------------	-------	------

BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0

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ANALYSIS

STORET RESULT

PAGE 4

1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0

COMMENTS:

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930447  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

WEDNESDAY JUNE 9TH, 1993  
 RELEASE DATE : 06/09/93 13:29:53  
 DT COLLECTED : 03/09/93 16:10:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-08

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	17
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
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SAMPLE NUMBER : 0310930447  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
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WEDNESDAY JUNE 9TH, 1993  
 RELEASE DATE : 06/09/93 13:29:53  
 DT COLLECTED : 03/09/93 16:10:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-08

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
HRYSENE UG/KG	34323	<300
SIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEXANE,2,3,4-TRIMETHYL-		DETECTED
OCTANE,3-METHYL-		DETECTED

SILVER MG/KG	180
ALUMINUM MG/KG	1200
BARIUM MG/KG	53
BERYLLIUM MG/KG	0.6
CADMIUM MG/KG	1.2
COBALT MG/KG	13
CHROMIUM MG/KG	190
COPPER MG/KG	400
MANGANESE MG/KG	2300
MOLYBDENUM MG/KG	24
NICKEL MG/KG	120



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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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SAMPLE NUMBER : 0310930447  
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WEDNESDAY JUNE 9TH, 1993  
 RELEASE DATE : 06/09/93 13:29:53  
 DT COLLECTED : 03/09/93 16:10:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-08

ANALYSIS	STORET	RESULT	PAGE 3
LEAD MG/KG		<5.0	
ANTIMONY MG/KG		<5.0	
TIN MG/KG		370	
THALLIUM MG/KG		<50	
VANADIUM MG/KG		<2.0	
ZINC MG/KG		760	
MERCURY MG/KG	71921	<0.25	
PCB 1016 UG/KG	39514	<10.0	
PCB 1221 UG/KG		<10.0	
PCB 1232 UG/KG	39495	<10.0	
PCB 1242 UG/KG	39499	<10.0	
PCB 1248 UG/KG	39503	<10.0	
PCB 1254 UG/KG	39507	<10.0	
PCB 1260 UG/KG	39511	<10.0	
PCB 1262 UG/KG		<10.0	
SELENIUM MG/KG	01148	<0.5	
BENZENE UG/KG	34237	<20.0	
BROMODICHLOROMETHANE UG/KG	34330	<20.0	
BROMOFORM UG/KG	34290	<20.0	
BROMOMETHANE UG/KG	34416	<20.0	
CARBON TETRACHLORIDE UG/KG	34299	<20.0	
CHLOROBENZENE UG/KG	34304	<20.0	
CHLOROETHANE UG/KG	34314	<20.0	
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0	
CHLOROFORM UG/KG	34318	<20.0	
CHLOROMETHANE UG/KG	73304	<20.0	
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0	
1,2-DICHLOROBENZENE UG/KG	34539	<20.0	
1,3-DICHLOROBENZENE UG/KG	34569	<20.0	
1,4-DICHLOROBENZENE UG/KG	34574	<20.0	
1,1-DICHLOROETHANE UG/KG	34499	<20.0	
1,2-DICHLOROETHANE UG/KG	34534	<20.0	
1,1-DICHLOROETHENE UG/KG	34504	<20.0	
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0	
1,2-DICHLOROPROPANE UG/KG	34544	<20.0	
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0	

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
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SAMPLE NUMBER : 0310930447  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

WEDNESDAY JUNE 9TH, 1993  
 RELEASE DATE : 06/09/93 13:29:53  
 DT COLLECTED : 03/09/93 16:10:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-08

ANALYSIS

STORET RESULT

PAGE 4

TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0
DISULFIDE,BIS(1,1-DIMETHYLETHYL)		DETECTED

COMMENTS:

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930448  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

FRIDAY MAY 21ST, 1993  
 RELEASE DATE : 05/21/93 15:33:15  
 DT COLLECTED : 03/09/93 16:52:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-03

ANALYSIS STORET RESULT

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	0.6
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	54569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	54411	<300
1-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	54445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
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SAMPLE NUMBER : 0310930448  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

FRIDAY MAY 21ST, 1993  
 RELEASE DATE : 05/21/93 15:33:15  
 DT COLLECTED : 03/09/93 16:52:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-03

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEXANE,2,3,4-TRIMETHYL-		DETECTED
1,3,6-OCTRIENE,3,7-DIMETHYL-, (E)-		DETECTED
SILVER MG/KG		<3.0
ALUMINUM MG/KG		2000
BARIUM MG/KG		12
BERYLLIUM MG/KG		<0.3
CADMIUM MG/KG		<1.0
COBALT MG/KG		<2.0
CHROMIUM MG/KG		2.3
COPPER MG/KG		1.4
MANGANESE MG/KG		20
MOLYBDENUM MG/KG		<2.0
NICKEL MG/KG		<2.0

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
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SAMPLE NUMBER : 0310930448  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

FRIDAY MAY 21ST, 1993  
 RELEASE DATE : 05/21/93 15:33:15  
 DT COLLECTED : 03/09/93 16:52:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-03

ANALYSIS	STORET	RESULT	PAGE 3
LEAD MG/KG		<5.0	
ANTIMONY MG/KG		<5.0	
TIN MG/KG		<50	
THALLIUM MG/KG		<50	
VANADIUM MG/KG		2.9	
ZINC MG/KG		7.3	
MERCURY MG/KG	71921	<0.25	
PCB 1016 UG/KG	39514	<10.0	
PCB 1221 UG/KG		<10.0	
PCB 1232 UG/KG	39495	<10.0	
PCB 1242 UG/KG	39499	<10.0	
PCB 1248 UG/KG	39503	<10.0	
PCB 1254 UG/KG	39507	19.3	
PCB 1260 UG/KG	39511	<10.0	
PCB 1262 UG/KG		<10.0	
SELENIUM MG/KG	01148	<0.5	
BENZENE UG/KG	34237	<20.0	
BROMODICHLOROMETHANE UG/KG	34330	<20.0	
BROMOFORM UG/KG	34290	<20.0	
BROMOMETHANE UG/KG	34416	<20.0	
CARBON TETRACHLORIDE UG/KG	34299	<20.0	
CHLOROBENZENE UG/KG	34304	<20.0	
CHLOROETHANE UG/KG	34314	<20.0	
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0	
CHLOROFORM UG/KG	34318	<20.0	
CHLOROMETHANE UG/KG	73304	<20.0	
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0	
1,2-DICHLOROBENZENE UG/KG	34539	<20.0	
1,3-DICHLOROBENZENE UG/KG	34569	<20.0	
1,4-DICHLOROBENZENE UG/KG	34574	<20.0	
1,1-DICHLOROETHANE UG/KG	34499	<20.0	
1,2-DICHLOROETHANE UG/KG	34534	<20.0	
1,1-DICHLOROETHENE UG/KG	34504	<20.0	
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0	
1,2-DICHLOROPROPANE UG/KG	34544	<20.0	
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0	

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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SAMPLE NUMBER : 0310930448  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

FRIDAY MAY 21ST, 1993  
 RELEASE DATE : 05/21/93 15:33:15  
 DT COLLECTED : 03/09/93 16:52:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-03

ANALYSIS

	STORET	RESULT	PAGE 4
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0	
ETHYLBENZENE UG/KG	34374	<20.0	
METHYLENE CHLORIDE UG/KG	34426	<20.0	
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0	
TETRACHLOROETHENE UG/KG	34478	<20.0	
TOLUENE UG/KG	34483	<20.0	
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0	
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0	
TRICHLOROETHENE UG/KG	34487	<20.0	
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0	
VINYL CHLORIDE UG/KG	34495	<20.0	

COMMENTS:

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930449  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 27TH, 1993  
 RELEASE DATE : 05/27/93 13:48:16  
 DT COLLECTED : 03/09/93 17:00:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-02

ANALYSIS

	STORET	RESULT
ARSENIC MG/KG	01003	1.0
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
1-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34564	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930449  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 27TH, 1993  
 RELEASE DATE : 05/27/93 13:48:16  
 DT COLLECTED : 03/09/93 17:00:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-02

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34359	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEPTANE,2,3-DIMETHYL-		DETECTED
4-CARENE,(1S,3S,6R)-(-)-		DETECTED

SILVER MG/KG	<3.0
ALUMINUM MG/KG	2600
BARIUM MG/KG	20
BERYLLIUM MG/KG	0.3
CADMIUM MG/KG	<1.0
COBALT MG/KG	<2.0
CHROMIUM MG/KG	4.1
COPPER MG/KG	4.8
MANGANESE MG/KG	20
MOLYBDENUM MG/KG	2.3
NICKEL MG/KG	<2.0



\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930449  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 27TH, 1993  
 RELEASE DATE : 05/27/93 13:48:16  
 DT COLLECTED : 03/09/93 17:00:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-02

ANALYSIS STORET RESULT PAGE 3

LEAD MG/KG		12
ANTIMONY MG/KG		<5.0
TIN MG/KG		<50
THALLIUM MG/KG		<50
VANADIUM MG/KG		4.1
ZINC MG/KG		25

MERCURY MG/KG	71921	<0.25
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PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	13.2
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0

SELENIUM MG/KG	01148	<0.5
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BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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SAMPLE NUMBER : 0310930449  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 27TH, 1993  
 RELEASE DATE : 05/27/93 13:48:16  
 DT COLLECTED : 05/09/93 17:00:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-02

ANALYSIS

STORET RESULT

PAGE 4

TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	133
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0
OTHER COMPOUNDS DETECTED		SEE COMMENTS

COMMENTS:

BENZENE,1-METHYL-4-(10METHYLETHYL)-

RECEIVED

## WATER SAMPLES

County Darlington

Date 3-9-93 Collected By Ron Wilde An "X" in the small column indicates test requested.

An "X" in the small column indicates test requested.

Comments:

Date Received in Central Laboratory 3/10/93 by MR  
 Date Released from Central Laboratory 06/09/93 by TCK

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310970456  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY APRIL 19TH, 1993  
 RELEASE DATE : 04/26/93 10:15:48  
 DT COLLECTED : 03/09/93 17:51:00  
 SAMPLE MEDIUM : WATER  
 STATION CODE : SW-17

ANALYSIS	STORET	RESULT
ALKALINITY MG/L	00410	6
ARSENIC UG/L	01002	<5
N-NITROSODIMETHYLAMINE UG/L	34438	<4.0
ANILINE UG/L	77089	<4.0
PHENOL UG/L	34694	<4.0
BIS(2-CHLOROETHYL)ETHER UG/L	34273	<4.0
2-CHLOROPHENOL UG/L	34586	<4.0
1,3-DICHLOROBENZENE UG/L	34566	<4.0
1,4-DICHLOROBENZENE UG/L	34571	<4.0
BENZYL ALCOHOL UG/L	77147	<4.0
1,2-DICHLOROBENZENE UG/L	34536	<4.0
2-METHYLPHENOL UG/L		<4.0
BIS(2-CHLOROISOPROPYL)ETHER UG/L	34283	<4.0
4-METHYLPHENOL UG/L		<4.0
N-NITROSODI-N-PROPYLAMINE UG/L	34428	<4.0
HEXACHLOROETHANE UG/L	34396	<4.0
NITROBENZENE UG/L	34447	<4.0
1-SOPHORONE UG/L	34400	<4.0
2-NITROPHENOL UG/L	34591	<4.0
2,4-DIMETHYL PHENOL UG/L	34606	<4.0
BENZOIC ACID UG/L	77247	<4.0
BIS(2-CHLOROETHOXY)METHANE UG/L	34278	<4.0
2,4-DICHLOROPHENOL UG/L	34601	<4.0
1,2,4-TRICHLOROBENZENE UG/L	34551	<4.0
NAPHTHALENE UG/L	34696	<4.0
4-CHLOROANILINE UG/L		<4.0
HEXACHLOROBUTADIENE UG/L	34391	<4.0
4-CHLORO-3-METHYL PHENOL UG/L	34452	<4.0
2-METHYL NAPHTHALENE UG/L	77416	<4.0
HEXACHLOROCYCLOPENTADIENE UG/L	34386	<4.0
2,4,6-TRICHLOROPHENOL UG/L	34621	<4.0
2,4,5-TRICHLOROPHENOL UG/L	77687	<4.0
2-CHLORONAPHTHALENE UG/L	34581	<4.0
2-NITROANILINE UG/L		<4.0
DIMETHYL PHTHALATE UG/L	34341	<4.0
ACENAPHTHYLENE UG/L	34200	<4.0
2,6-DINITROTOLUENE UG/L	34626	<4.0
5-NITROANILINE UG/L	78500	<4.0
ACENAPHTHENE UG/L	34205	<4.0
4-NITROPHENOL UG/L	34646	<4.0

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930456  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY APRIL 26TH, 1993  
 RELEASE DATE : 04/26/93 16:15:48  
 DT COLLECTED : 03/09/93 17:51:00  
 SAMPLE MEDIUM : WATER  
 STATION CODE : SW-17

ANALYSIS

STORET RESULT

PAGE 2

DIBENZOFURAN UG/L	81302	<4.0
2,4-DINITROTOLUENE UG/L	34611	<4.0
DIETHYL PHTHALATE UG/L	34336	<4.0
4-CHLOROPHENYL PHENYL ETHER UG/L	34641	<4.0
FLUORENE UG/L	34381	<4.0
4-NITROANILINE UG/L		<4.0
AZOBENZENE UG/L	77625	<4.0
2-METHYL-4,6-DINITROPHENOL UG/L	34657	<4.0
N-NITROSODIPHENYLAMINE UG/L	34433	<4.0
4-BROMOPHENYL PHENYL ETHER UG/L	34636	<4.0
HEXACHLOROBENZENE UG/L	39700	<4.0
PENTACHLOROPHENOL UG/L	39032	<4.0
PHENANTHRENE UG/L	34461	<4.0
ANTHRACENE UG/L	34220	<4.0
DI-N-BUTYLPHTHALATE UG/L	39110	<4.0
FLUORANTHENE UG/L	34376	<4.0
PYRENE UG/L	34469	<4.0
BUTYLBENZYL PHTHALATE UG/L	34292	<4.0
3,3'-DICHLOROBENZIDINE UG/L	34631	<4.0
BENZO(A)ANTHRACENE UG/L	34526	<4.0
CHRYSENE UG/L	34320	<4.0
BIS(2-ETHYLHEXYL)PHTHALATE UG/L	39100	<4.0
DI-N-OCTYLPHTHALATE UG/L	34596	<4.0
BENZO(B)FLUORANTHENE UG/L	34230	<4.0
BENZO(K)FLUORANTHENE UG/L	34242	<4.0
BENZO(A)PYRENE UG/L	34247	<4.0
INDENO(1,2,3-CD)PYRENE UG/L	34403	<4.0
DIBENZO(A,H)ANTHRACENE UG/L	34556	<4.0
BENZO(GHI)PERYLENE UG/L	34521	<4.0

SILVER UG/L	<30
ALUMINUM UG/L	<50
BARIUM UG/L	<50
BERYLLIUM UG/L	<3
CADMIUM UG/L	<10
COBALT UG/L	<20
CHROMIUM UG/L	<10
COPPER UG/L	LO
MANGANESE UG/L	50
MOLYBDENUM UG/L	50
NICKEL UG/L	<20

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930456  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY APRIL 26TH, 1993  
 RELEASE DATE : 04/26/93 16:15:48  
 DT COLLECTED : 03/09/93 17:51:00  
 SAMPLE MEDIUM : WATER  
 STATION CODE : SW-17

ANALYSIS STORET RESULT PAGE 3

LEAD UG/L		<50
ANTIMONY UG/L		<50
TIN UG/L		<500
THALLIUM UG/L		<500
VANADIUM UG/L		<20
ZINC UG/L		1000

CYANIDE MG/L	00720	<0.01
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MERCURY UG/L	71900	<0.2
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NITRATE/NITRITE MG/L	00630	<0.02
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PCB 1016 UG/L	34671	<0.5
PCB 1221 UG/L	39488	<0.5
PCB 1232 UG/L	39492	<0.5
PCB 1242 UG/L	39496	<0.5
PCB 1248 UG/L	39500	<0.5
CB 1254 UG/L	39504	<0.5
PCB 1260 UG/L	39508	<0.5
PCB 1262 UG/L	81649	<0.5

PH S.U.	00403	5.0
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TOTAL PHENOL UG/L	32730	<10
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SELENIUM UG/L	01147	<5
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BENZENE UG/L	34030	<2.0
BROMODICHLOROMETHANE UG/L	32101	<2.0
BROMOFORM UG/L	32104	<2.0
BROMOMETHANE UG/L	34413	<2.0
CARBON TETRACHLORIDE UG/L	32102	<2.0
CHLOROBENZENE UG/L	34301	<2.0
CHLOROETHANE UG/L	34311	<2.0
2-CHLOROETHYL VINYL ETHER UG/L	34576	<2.0
CHLOROFORM UG/L	32106	<2.0
CHLOROMETHANE UG/L	34413	<2.0
DIBROMOCHLOROMETHANE UG/L	32105	<2.0
1,2-DICHLOROBENZENE UG/L	34536	<2.0

\*\*\*\*\*  
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 STATION CODE : SW-17

ANALYSIS

STORET RESULT

PAGE 4

1,3-DICHLOROBENZENE UG/L	34566	<2.0
1,4-DICHLOROBENZENE UG/L	34571	<2.0
1,1-DICHLOROETHANE UG/L	34496	<2.0
1,2-DICHLOROETHANE UG/L	34531	<2.0
1,1-DICHLOROETHENE UG/L	34501	<2.0
TRANS-1,2-DICHLOROETHENE UG/L	34546	<2.0
1,2-DICHLOROPROPANE UG/L	34541	<2.0
CIS-1,3-DICHLOROPROPENE UG/L	34704	<2.0
TRANS-1,3-DICHLOROPROPENE UG/L	34699	<2.0
ETHYL BENZENE UG/L	34371	<2.0
METHYLENE CHLORIDE UG/L	34423	<2.0
1,1,2,2-TETRACHLOROETHANE UG/L	34516	<2.0
TETRACHLOROETHENE UG/L	34475	<2.0
TOLUENE UG/L	34010	<2.0
1,1,1-TRICHLOROETHANE UG/L	34506	<2.0
1,1,2-TRICHLOROETHANE UG/L	34511	<2.0
TRICHLOROETHENE UG/L	39130	<2.0
TRICHLOROFLUOROMETHANE UG/L	34488	<2.0
VINYL CHLORIDE UG/L	39175	<2.0

COMMENTS:

MERCURY WAS ANALYZED AFTER HOLDING TIME.

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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 \*\*\*\*\*

SAMPLE NUMBER : 0310930457  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY APRIL 26TH, 1993  
 RELEASE DATE : 04/26/93 16:15:49  
 DT COLLECTED : 03/09/93 18:15:00  
 SAMPLE MEDIUM : WATER  
 STATION CODE : SW-18

ANALYSIS	STORET	RESULT
ALKALINITY MG/L	00410	79
ARSENIC UG/L	01002	29
N-NITROSODIMETHYLAMINE UG/L	34438	<4.0
ANILINE UG/L	77089	<4.0
PHENOL UG/L	34694	<4.0
BIS(2-CHLOROETHYL)ETHER UG/L	34273	<4.0
2-CHLOROPHENOL UG/L	34586	<4.0
1,3-DICHLOROBENZENE UG/L	34566	<4.0
1,4-DICHLOROBENZENE UG/L	34571	<4.0
BENZYL ALCOHOL UG/L	77147	<4.0
1,2-DICHLOROBENZENE UG/L	34536	<4.0
2-METHYLPHENOL UG/L		<4.0
BIS(2-CHLOROISOPROPYL)ETHER UG/L	34283	<4.0
4-METHYLPHENOL UG/L		<4.0
N-NITROSODI-N-PROPYLAMINE UG/L	34428	<4.0
HEXACHLOROETHANE UG/L	34396	<4.0
NITROBENZENE UG/L	34447	<4.0
ISOPHORONE UG/L	34408	<4.0
2-NITROPHENOL UG/L	34591	<4.0
2,4-DIMETHYL PHENOL UG/L	34606	<4.0
BENZOIC ACID UG/L	77247	<4.0
BIS(2-CHLOROETHOXY)METHANE UG/L	34278	<4.0
2,4-DICHLOROPHENOL UG/L	34601	<4.0
1,2,4-TRICHLOROBENZENE UG/L	34551	<4.0
NAPHTHALENE UG/L	34696	<4.0
4-CHLOROANILINE UG/L		<4.0
HEXACHLOROBUTADIENE UG/L	34391	<4.0
4-CHLORO-3-METHYL PHENOL UG/L	34452	<4.0
2-METHYL NAPHTHALENE UG/L	77416	<4.0
HEXACHLOROXYCLOPENTADIENE UG/L	34386	<4.0
2,4,6-TRICHLOROPHENOL UG/L	34621	<4.0
2,4,5-TRICHLOROPHENOL UG/L	77687	<4.0
2-CHLORONAPHTHALENE UG/L	34581	<4.0
2-NITROANILINE UG/L		<4.0
DIMETHYL PHTHALATE UG/L	34341	<4.0
ACENAPHTHYLENE UG/L	34200	<4.0
2,6-DINITROTOLUENE UG/L	34626	<4.0
5-NITROANILINE UG/L	78300	<4.0
ACENAPHTHENE UG/L	34205	<4.0
4-NITROPHENOL UG/L	34646	<4.0



\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930457  
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 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY APRIL 26TH, 1993  
 RELEASE DATE : 04/26/93 16:15:49  
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 SAMPLE MEDIUM : WATER  
 STATION CODE : SW-18

ANALYSIS

STORET RESULT

PAGE 2

DIBENZOFURAN UG/L	81302	<4.0
2,4-DINITROTOLUENE UG/L	34611	<4.0
DIETHYL PHTHALATE UG/L	34336	<4.0
4-CHLOROPHENYL PHENYL ETHER UG/L	34641	<4.0
FLUORENE UG/L	34381	<4.0
4-NITROANILINE UG/L		<4.0
AZOBENZENE UG/L	77625	<4.0
2-METHYL-4,6-DINITROPHENOL UG/L	34657	<4.0
N-NITROSODIPHENYLAMINE UG/L	34433	<4.0
4-BROMOPHENYL PHENYL ETHER UG/L	34636	<4.0
HEXACHLOROBENZENE UG/L	39700	<4.0
PENTACHLOROPHENOL UG/L	39032	<4.0
PHENANTHRENE UG/L	34461	<4.0
ANTHRACENE UG/L	34220	<4.0
DI-N-BUTYLPHTHALATE UG/L	39110	<4.0
FLUORANTHENE UG/L	34376	<4.0
PYRENE UG/L	34469	<4.0
BUTYLBENZYL PHTHALATE UG/L	34292	<4.0
3,3'-DICHLOROBENZIDINE UG/L	34631	<4.0
ENZO(A)ANTHRACENE UG/L	34526	<4.0
CHRYSENE UG/L	34320	<4.0
BIS(2-ETHYLHEXYL)PHTHALATE UG/L	39100	<4.0
DI-N-OCTYLPHTHALATE UG/L	34596	<4.0
BENZO(B)FLUORANTHENE UG/L	34230	<4.0
BENZO(K)FLUORANTHENE UG/L	34242	<4.0
BENZO(A)PYRENE UG/L	34247	<4.0
INDENO(1,2,3-CD)PYRENE UG/L	34403	<4.0
DIBENZO(A,H)ANTHRACENE UG/L	34556	<4.0
BENZO(GHI)PERYLENE UG/L	34521	<4.0
HEXANOIC ACID,2-ETHYL-		DETECTED
2-PENTANOL,4-METHYL-		DETECTED
SILVER UG/L		<30
ALUMINUM UG/L		<50
BARIUM UG/L		<50
BERYLLIUM UG/L		<3
CADMIUM UG/L		<10
COBALT UG/L		<20
CHROMIUM UG/L		20
COPPER UG/L		30
MANGANESE UG/L		100

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310980457  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY APRIL 26TH, 1993  
 RELEASE DATE : 04/26/93 16:15:49  
 DT COLLECTED : 03/09/93 18:15:00  
 SAMPLE MEDIUM : WATER  
 STATION CODE : SW-18

ANALYSIS STORET RESULT PAGE 3

MOLYBDENUM UG/L		50
NICKEL UG/L		30
LEAD UG/L		<50
ANTIMONY UG/L		<50
TIN UG/L		<500
THALLIUM UG/L		<500
VANADIUM UG/L		<20
ZINC UG/L		50

CYANIDE MG/L	00720	<0.01
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MERCURY UG/L	71900	<0.2
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NITRATE/NITRITE MG/L	00630	<0.02
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PTH. ALKALINITY MG/L	00415	2
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PCB 1016 UG/L	34671	<0.5
CB 1221 UG/L	39488	<0.5
PCS 1232 UG/L	39492	<0.5
PCB 1242 UG/L	39496	<0.5
PCB 1248 UG/L	39500	<0.5
PCB 1254 UG/L	39504	<0.5
PCB 1260 UG/L	39508	<0.5
PCB 1262 UG/L	31649	<0.5

PH S.U.	00405	8.4
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TOTAL PHENOL UG/L	32730	14
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SELENIUM UG/L	01147	<5
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BENZENE UG/L	34030	<2.0
BROMODICHLOROMETHANE UG/L	32101	<2.0
BROMOFORM UG/L	32104	<2.0
BROMOMETHANE UG/L	34413	<2.0
CARBON TETRACHLORIDE UG/L	32102	<2.0
CHLOROBENZENE UG/L	34301	<2.0
CHLOROETHANE UG/L	34311	<2.0
2-CHLOROETHYL VINYL ETHER UG/L	34576	<2.0

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930457  
 CHARGE NUMBER : 02  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY APRIL 26TH, 1993  
 RELEASE DATE : 04/26/93 18:15:49  
 DT COLLECTED : 03/09/93 18:15:00  
 SAMPLE MEDIUM : WATER  
 STATION CODE : SW-18

ANALYSIS

STORET RESULT

PAGE 4

CHLOROFORM UG/L	32105	<2.0
CHLOROMETHANE UG/L	34418	<2.0
DIBROMOCHLOROMETHANE UG/L	32105	<2.0
1,2-DICHLOROBENZENE UG/L	34536	<2.0
1,3-DICHLOROBENZENE UG/L	34566	<2.0
1,4-DICHLOROBENZENE UG/L	34571	<2.0
1,1-DICHLOROETHANE UG/L	34496	<2.0
1,2-DICHLOROETHANE UG/L	34531	<2.0
1,1-DICHLOROETHENE UG/L	34501	<2.0
TRANS-1,2-DICHLOROETHENE UG/L	34546	<2.0
1,2-DICHLOROPROPANE UG/L	34541	<2.0
CIS-1,3-DICHLOROPROPENE UG/L	34704	<2.0
TRANS-1,3-DICHLOROPROPENE UG/L	34699	<2.0
ETHYL BENZENE UG/L	34571	<2.0
METHYLENE CHLORIDE UG/L	34423	<2.0
1,1,2,2-TETRACHLOROETHANE UG/L	34516	<2.0
TETRACHLOROETHENE UG/L	34475	<2.0
TOLUENE UG/L	34010	<2.0
1,1,1-TRICHLOROETHANE UG/L	34506	<2.0
1,1,2-TRICHLOROETHANE UG/L	34511	<2.0
TRICHLOROETHENE UG/L	39180	<2.0
TRICHLOROFLUOROMETHANE UG/L	34488	<2.0
VINYL CHLORIDE UG/L	39175	<2.0

COMMENTS:

MERCURY WAS ANALYZED AFTER HOLDING TIME.

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930458  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

WEDNESDAY MARCH 24TH, 1993  
 RELEASE DATE : 03/24/93 13:02:18  
 DT COLLECTED : 03/09/93 00:00:00  
 SAMPLE MEDIUM : WATER  
 STATION CODE : BLANK

ANALYSIS	STORET	RESULT
CHLOROMETHANE UG/L	34418	<2.0
VINYL CHLORIDE UG/L	39175	<2.0
BROMOMETHANE UG/L	34413	<2.0
CHLOROETHANE UG/L	34311	<2.0
TRICHLOROFLUOROMETHANE UG/L	34488	<2.0
1,1-DICHLOROETHENE UG/L	34501	<2.0
METHYLENE CHLORIDE UG/L	34423	<2.0
TRANS-1,2-DICHLOROETHENE UG/L	34546	<2.0
1,1-DICHLOROETHANE UG/L	34496	<2.0
CHLOROFORM UG/L	32106	<2.0
1,1,1-TRICHLOROETHANE UG/L	34506	<2.0
CARBON TETRACHLORIDE UG/L	32102	<2.0
BENZENE UG/L	34030	<2.0
1,2-DICHLOROETHANE UG/L	34531	<2.0
TRICHLOROETHENE UG/L	39180	<2.0
1,2-DICHLOROPROPANE UG/L	34541	<2.0
BROMODICHLOROMETHANE UG/L	32101	<2.0
2-CHLOROETHYL VINYL ETHER UG/L	34576	<2.0
IS-1,3-DICHLOROPROPENE UG/L	34704	<2.0
TOLUENE UG/L	34010	<2.0
TRANS-1,3-DICHLOROPROPENE UG/L	34699	<2.0
1,1,2-TRICHLOROETHANE UG/L	34511	<2.0
TETRACHLOROETHENE UG/L	34475	<2.0
DIBROMOCHLOROMETHANE UG/L	32105	<2.0
CHLOROBENZENE UG/L	34301	<2.0
ETHYL BENZENE UG/L	34371	<2.0
BROMOFORM UG/L	32104	<2.0
1,1,2,2-TETRACHLOROETHANE UG/L	34516	<2.0
1,3-DICHLOROBENZENE UG/L	34566	<2.0
1,4-DICHLOROBENZENE UG/L	34571	<2.0
1,2-DICHLOROBENZENE UG/L	34536	<2.0

COMMENTS:



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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930450  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:19  
 DT COLLECTED : 03/09/93 11:35:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-12

ANALYSIS

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	21
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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 \*\*\*\*\*

SAMPLE NUMBER : 0310930450  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:19  
 DT COLLECTED : 06/09/93 11:35:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-12

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
OCTANE,3-METHYL-		DETECTED
OCTANE,2,3,7-TRIMETHYL-		DETECTED
5-HEXEN-2-ONE-,5-METHYL-		DETECTED
DECANE		DETECTED
CYCLOHEXANE,BUTYL-		DETECTED
ISOOCTANOL		DETECTED
1-HEPTANOL,2-PROPYL-		DETECTED

SILVER MG/KG	59
ALUMINUM MG/KG	2500
BARIIUM MG/KG	21
BERYLLIUM MG/KG	0.4
CADMIUM MG/KG	7.4
COBALT MG/KG	40

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
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SAMPLE NUMBER : 0310930450  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:19  
 DT COLLECTED : 03/09/93 11:35:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-12

ANALYSIS	STORET	RESULT	PAGE 3
CHROMIUM MG/KG		260	
COPPER MG/KG		1000	
MANGANESE MG/KG		2000	
MOLYBDENUM MG/KG		52	
NICKEL MG/KG		240	
LEAD MG/KG		200	
ANTIMONY MG/KG		<5.0	
TIN MG/KG		720	
THALLIUM MG/KG		<50	
VANADIUM MG/KG		<2.0	
ZINC MG/KG		2200	
MERCURY MG/KG	71921	<0.25	
PCB 1016 UG/KG	39514	<10.0	
PCB 1221 UG/KG		<10.0	
PCB 1232 UG/KG	39495	<10.0	
PCB 1242 UG/KG	39499	100	
PCB 1248 UG/KG	39503	<10.0	
PCB 1254 UG/KG	39507	95.8	
PCB 1260 UG/KG	39511	<10.0	
PCB 1262 UG/KG		<10.0	
SELENIUM MG/KG	01148	<0.5	
BENZENE UG/KG	34237	<20.0	
BROMODICHLOROMETHANE UG/KG	34330	<20.0	
BROMOFORM UG/KG	34290	<20.0	
BROMOMETHANE UG/KG	34416	<20.0	
CARBON TETRACHLORIDE UG/KG	34299	<20.0	
CHLOROBENZENE UG/KG	34304	<20.0	
CHLOROETHANE UG/KG	34314	<20.0	
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0	
CHLOROFORM UG/KG	34318	<20.0	
CHLOROMETHANE UG/KG	73304	<20.0	
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0	
1,2-DICHLOROBENZENE UG/KG	34539	<20.0	
1,3-DICHLOROBENZENE UG/KG	34569	<20.0	
1,4-DICHLOROBENZENE UG/KG	34574	<20.0	
1,1-DICHLOROETHANE UG/KG	34499	<20.0	



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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930450  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:19  
 DT COLLECTED : 03/09/93 11:35:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-12

ANALYSIS

STORET RESULT

PAGE 4

1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0
BENZENE,1-ETHYL-2-METHYL-		DETECTED
BENZENE,1,2,3-TRIMETHYL-		DETECTED
BENZENE,1,2,3,4-TETRAMETHYL-		DETECTED

COMMENTS:

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930451  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
 RELEASE DATE : 05/20/93 13:08:16  
 DT COLLECTED : 03/10/93 12:35:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-10

ANALYSIS

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	<0.5
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34559	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930451  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
 RELEASE DATE : 05/20/93 13:08:16  
 DT COLLECTED : 03/10/93 12:35:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-10

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
HRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEPTANE,4-(1-METHYLETHYL)-		DETECTED

SILVER MG/KG	<3.0
ALUMINUM MG/KG	270
BARIUM MG/KG	<5.0
BERYLLIUM MG/KG	<0.3
CADMIUM MG/KG	<1.0
COBALT MG/KG	<2.0
CHROMIUM MG/KG	1.1
COPPER MG/KG	2.2
MANGANESE MG/KG	12
MOLYBDENUM MG/KG	<2.0
NICKEL MG/KG	<2.0
LEAD MG/KG	<5.0

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930451  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
 RELEASE DATE : 05/20/93 13:08:16  
 DT COLLECTED : 03/10/93 12:35:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-10

ANALYSIS

STORET RESULT

PAGE 3

ANTIMONY MG/KG		<5.0
TIN MG/KG		<50
THALLIUM MG/KG		<50
VANADIUM MG/KG		<2.0
ZINC MG/KG		16

MERCURY MG/KG	71921	<0.25
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PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	<10.0
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0

SELENIUM MG/KG	01148	<0.5
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BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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SAMPLE NUMBER : 0310930451  
 CHARGE NUMBER : CE  
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 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
 RELEASE DATE : 05/20/93 13:08:16  
 DT COLLECTED : 03/10/93 12:35:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-10

ANALYSIS

	STORET	RESULT	PAGE 4
ETHYLBENZENE UG/KG	34374	<20.0	
METHYLENE CHLORIDE UG/KG	34426	<20.0	
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0	
TETRACHLOROETHENE UG/KG	34478	<20.0	
TOLUENE UG/KG	34483	<20.0	
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0	
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0	
TRICHLOROETHENE UG/KG	34487	<20.0	
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0	
VINYL CHLORIDE UG/KG	34495	<20.0	

COMMENTS:

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930452  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

FRIDAY MAY 28TH, 1993  
 RELEASE DATE : 05/28/93 15:38:46  
 DT COLLECTED : 03/09/93 12:45:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-11

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	<0.5
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
TSOPHORONE UG/KG	34411	<300
-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34203	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 SAMPLE MEDIUM : SED  
 STATION CODE : SD-11

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
HRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEXANE,2,3,4-TRIMETHYL-		DETECTED

SILVER MG/KG	<3.0
ALUMINUM MG/KG	410
BARIUM MG/KG	<5.0
BERYLLIUM MG/KG	<0.3
CADMIUM MG/KG	<1.0
COBALT MG/KG	<2.0
CHROMIUM MG/KG	1.2
COPPER MG/KG	<1.0
MANGANESE MG/KG	3.2
MOLYBDENUM MG/KG	<2.0
NICKEL MG/KG	<2.0
LEAD MG/KG	<5.0

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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SAMPLE NUMBER : 0310930452  
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 SAMPLE TYPE :

FRIDAY MAY 28TH, 1993  
 RELEASE DATE : 05/28/93 15:38:46  
 DT. COLLECTED : 03/09/93 12:45:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-11

ANALYSIS

STORET RESULT

PAGE 3

ANALYSIS	STORET	RESULT
ANTIMONY MG/KG		<5.0
TIN MG/KG		<50
THALLIUM MG/KG		<50
VANADIUM MG/KG		<2.0
ZINC MG/KG		11

MERCURY MG/KG	71921	<0.25
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PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	<10.0
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0

SELENIUM MG/KG	01148	<0.5
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BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0



\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930452  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

FRIDAY MAY 28TH, 1993  
 RELEASE DATE : 05/28/93 15:38:46  
 DT COLLECTED : 03/09/93 12:45:00  
 SAMPLE MEDIUM : SED.  
 STATION CODE : SD-11

ANALYSIS

STORET RESULT

PAGE 4

ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0

COMMENTS:

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930453  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:20  
 DT COLLECTED : 03/09/93 14:30:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-09

ANALYSIS

STORET RESULT

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	<1.0
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34539	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34451	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34231	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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SAMPLE NUMBER : 0310930453  
 CHARGE NUMBER : CE  
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 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:20  
 DT COLLECTED : 03/09/93 14:30:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-09

ANALYSIS	STORET	RESULT	PAGE 2
DIETHYL PHTHALATE UG/KG	34339	<300	
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300	
FLUORENE UG/KG	34384	<300	
4-NITROANILINE UG/KG	78870	<300	
AZOBENZENE UG/KG		<300	
2-METHYL-4,6-DINITROPHENOL UG/KG		<300	
N-NITROSODIPHENYLAMINE UG/KG	34436	<300	
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300	
HEXACHLOROBENZENE UG/KG	39701	<300	
PENTACHLOROPHENOL UG/KG	78873	<300	
PHENANTHRENE UG/KG	34464	<300	
ANTHRACENE UG/KG	34223	<300	
DI-N-BUTYLPHTHALATE UG/KG	39112	<300	
FLUORANTHENE UG/KG	34379	<300	
PYRENE UG/KG	34472	<300	
BUTYLBENZYL PHTHALATE UG/KG	78800	<300	
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300	
BENZO(A)ANTHRACENE UG/KG	34529	<300	
CHRYSENE UG/KG	34323	<300	
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300	
DI-N-OCTYLPHTHALATE UG/KG	34599	<300	
BENZO(B)FLUORANTHENE UG/KG	34233	<300	
BENZO(K)FLUORANTHENE UG/KG	34245	<300	
BENZO(A)PYRENE UG/KG	34250	<300	
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300	
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300	
BENZO(GHI)PERYLENE UG/KG	34524	<300	
HEXANE,2,3,4-TRIMETHYL-		DETECTED	
SILVER MG/KG		<3.0	
ALUMINUM MG/KG		1700	
BARIUM MG/KG		18	
BERYLLIUM MG/KG		<0.3	
CADMIUM MG/KG		<1.0	
COBALT MG/KG		<2.0	
CHROMIUM MG/KG		4.6	
COPPER MG/KG		10	
MANGANESE MG/KG		22	
MOLYBDENUM MG/KG		<2.0	
NICKEL MG/KG		2.5	
LEAD MG/KG		29	

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
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SAMPLE NUMBER : 0310930453  
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THURSDAY JUNE 3RD, 1993  
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 SAMPLE MEDIUM : SED  
 STATION CODE : SD-09

ANALYSIS

STORET RESULT

PAGE 3

ANTIMONY MG/KG		<5.0
TIN MG/KG		<50
THALLIUM MG/KG		<50
VANADIUM MG/KG		2.5
ZINC MG/KG		120

MERCURY MG/KG	71921	<0.25
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PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	<10.0
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0

SELENIUM MG/KG	01148	<0.5
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BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34524	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930453  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:20  
 DT COLLECTED : 05/09/93 14:30:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-09

ANALYSIS

STORET RESULT

PAGE 4

ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0

COMMENTS:

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930454  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY JUNE 7TH, 1993  
 RELEASE DATE : 06/07/93 15:22:56  
 DT COLLECTED : 03/09/93 15:25:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-07

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	3.4
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930454  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY JUNE 7TH, 1993  
 RELEASE DATE : 06/07/93 15:22:56  
 DT COLLECTED : 03/09/93 15:25:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-07

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
HRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300

SILVER MG/KG	11
ALUMINUM MG/KG	740
BARIUM MG/KG	9.3
BERYLLIUM MG/KG	<0.3
CADMIUM MG/KG	2.5
COSALT MG/KG	7.2
CHROMIUM MG/KG	95
COPPER MG/KG	220
MANGANESE MG/KG	920
MOLYBDENUM MG/KG	12
NICKEL MG/KG	61
LEAD MG/KG	97
ANTIMONY MG/KG	<5.0

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930454  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY JUNE 7TH, 1993  
 RELEASE DATE : 06/07/93 15:22:56  
 DT COLLECTED : 03/09/93 15:25:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-07

ANALYSIS STORET RESULT PAGE 3

ANALYSIS	STORET	RESULT
TIN MG/KG		190
THALLIUM MG/KG		<50
VANADIUM MG/KG		<2.0
ZINC MG/KG		630

MERCURY MG/KG	71921	<0.25
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PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	19.1
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0

ELENIUM MG/KG	01148	<0.5
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BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0



\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930454  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

MONDAY JUNE 7TH, 1993  
 RELEASE DATE : 06/07/93 15:22:56  
 DT COLLECTED : 03/09/93 15:25:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-07

ANALYSIS

	STORET	RESULT	PAGE 4
METHYLENE CHLORIDE UG/KG	34426	<20.0	
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0	
TETRACHLOROETHENE UG/KG	34478	<20.0	
TOLUENE UG/KG	34483	<20.0	
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0	
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0	
TRICHLOROETHENE UG/KG	34487	<20.0	
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0	
VINYL CHLORIDE UG/KG	34495	<20.0	

COMMENTS:

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930455  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:20  
 DT COLLECTED : 03/09/93 15:40:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-06

ANALYSIS STORET RESULT

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	16
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34589	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	73401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930455  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:20  
 DT COLLECTED : 03/09/93 15:40:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-06

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34359	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	1,320
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEPTANE,2,3-DIMETHYL-		DETECTED
HEXANE,3-ETHYL-		DETECTED
PENTANE,3-ETHYL-2,4-DIMETHYL-		DETECTED
OCTANE,2,3,7-TRIMETHYL-		DETECTED
DECANE,1-FLUORO-		DETECTED
DECANE		DETECTED
1-HEPTANOL,2-PROPYL-		DETECTED
DECANE 2-CYCLOHEXYL-,2-CYCLOHEXYL-		DETECTED
SILVER MG/KG		44
ALUMINUM MG/KG		4700
BARIUM MG/KG		77
BERYLLIUM MG/KG		<0.3
CADMIUM MG/KG		3.1

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930455  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 3RD, 1993  
 RELEASE DATE : 06/03/93 15:07:20  
 DT COLLECTED : 03/09/93 15:40:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-06

ANALYSIS

STORET RESULT

PAGE 3

COBALT MG/KG		23
CHROMIUM MG/KG		280
COPPER MG/KG		750
MANGANESE MG/KG		3900
MOLYBDENUM MG/KG		23
NICKEL MG/KG		170
LEAD MG/KG		190
ANTIMONY MG/KG		<5.0
TIN MG/KG		560
THALLIUM MG/KG		<50
VANADIUM MG/KG		<2.0
ZINC MG/KG		1700
MERCURY MG/KG	71921	<0.25
PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	394
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	370
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0
SELENIUM MG/KG	01148	<0.5
BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0

\*\*\*\*\*  
 SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
 ANALYTICAL SERVICES DIVISION LABORATORY REPORT  
 \*\*\*\*\*

SAMPLE NUMBER : 0310950455  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY JUNE 03RD, 1993  
 RELEASE DATE : 06/03/93 15:07:20  
 DT COLLECTED : 03/09/93 15:40:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-06

ANALYSIS

STORET RESULT

PAGE 4

1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34574	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0

COMMENTS:

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
Environmental Quality Control  
Analytical Services Sample Request for Chemical Compounds  
in Federal Superfund Program  
(Print Clearly)

**SOIL/SEDIMENT - HAZARDOUS WASTE SAMPLES**

Sample Location Nucor Steel County Darlington

Comments \_\_\_\_\_

Date 3-9-93 Collected By Ron Wilde An "X" in the small column indicates test requested.

SC DHEC Site Project Officer Jonathan McInnis

Time Collected (Military)	0940	0955	10:40	10:45	11:10	11:32
Sample Point	SS-01	SB-01	SS-14	SS-15	SS-13	SL-16
Lab No. <u>031093</u>	<u>0439</u>	<u>0440</u>	<u>0441</u>	<u>0442</u>	<u>SD-13</u> <u>0443</u>	<u>0444</u>
CE2-S	(X)	(X)	(X)	(X)	(X)	(X)
Mercury	X	X	X	X	X	X
Arsenic	X	X	X	X	X	X
Selenium	X	X	X	X	X	X
PCBs	(X)	(X)	(X)	(X)	(X)	(X)
BN/A Extractables	(X)	(X)	(X)	(X)	(X)	(X)
Volatile Organics	(X)	(X)	(X)	(X)	(X)	(X)
Pesticides						
Herbicides						
Flashpoint						

Comments:

Date Received in Central Laboratory 3/10/93 by MR  
Date Released from Central Laboratory 06/09/93 by TRK

**RECEIVED**

JUN 14 1993

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930439  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 6TH, 1993  
 RELEASE DATE : 05/06/93 13:13:13  
 DT COLLECTED : 03/09/93 09:40:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SS-01

ANALYSIS

STORET RESULT

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	0.7
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT  
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SAMPLE NUMBER : 0310930439  
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 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

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 RELEASE DATE : 05/06/93 13:13:13  
 DT COLLECTED : 03/09/93 09:40:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SS-01

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEXANE,2,3,4-TRIMETHYL-		DETECTED
PENTANE,1-PROPOXY-		DETECTED

SILVER MG/KG	<3.0
ALUMINUM MG/KG	1800
BARIUM MG/KG	6.3
BERYLLIUM MG/KG	<0.3
CADMIUM MG/KG	<1.0
COBALT MG/KG	<2.0
CHROMIUM MG/KG	2.2
COPPER MG/KG	2.8
MANGANESE MG/KG	20
MOLYBDENUM MG/KG	<2.0
NICKEL MG/KG	<2.0



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THURSDAY MAY 6TH, 1993  
 RELEASE DATE : 05/06/93 13:13:13  
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 SAMPLE MEDIUM : SED  
 STATION CODE : SS-01

ANALYSIS

STORET RESULT

PAGE 3

LEAD MG/KG		5.5
ANTIMONY MG/KG		<5.0
TIN MG/KG		<50
THALLIUM MG/KG		<50
VANADIUM MG/KG		2.9
ZINC MG/KG		59

MERCURY MG/KG	71921	<0.25
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PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	<10.0
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0

SELENIUM MG/KG	01148	<0.5
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BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0

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THURSDAY MAY 6TH, 1993  
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 STATION CODE : SS-01

ANALYSIS	STORET	RESULT	PAGE 4
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0	
ETHYLBENZENE UG/KG	34374	<20.0	
METHYLENE CHLORIDE UG/KG	34426	<20.0	
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0	
TETRACHLOROETHENE UG/KG	34478	<20.0	
TOLUENE UG/KG	34483	<20.0	
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0	
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0	
TRICHLOROETHENE UG/KG	34487	<20.0	
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0	
VINYL CHLORIDE UG/KG	34495	<20.0	

COMMENTS:

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 \*\*\*\*\*

SAMPLE NUMBER : 0310930440  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 6TH, 1993  
 RELEASE DATE : 05/06/93 13:13:14  
 DT COLLECTED : 03/09/93 09:55:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SB-01

ANALYSIS

	STORET	RESULT
ARSENIC MG/KG	01003	1.1
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEPTANE,2,3,6-TRIMETHYL-		DETECTED
HEXANE,2,3,4-TRIMETHYL-		DETECTED
5-HEXEN-2-ONE,5-METHYL-		DETECTED

SILVER MG/KG	<3.0
ALUMINUM MG/KG	8300
BARIUM MG/KG	15
BERYLLIUM MG/KG	0.3
CADMIUM MG/KG	<1.0
COBALT MG/KG	<2.0
CHROMIUM MG/KG	8.6
COPPER MG/KG	2.6
MANGANESE MG/KG	12
MOLYBDENUM MG/KG	<2.0

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SAMPLE NUMBER : 0310930440  
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 STATION CODE : SB-01

ANALYSIS

STORET RESULT

PAGE 3

NICKEL MG/KG		3.4
LEAD MG/KG		<5.0
ANTIMONY MG/KG		<5.0
TIN MG/KG		<50
THALLIUM MG/KG		<50
VANADIUM MG/KG		12
ZINC MG/KG		19
MERCURY MG/KG	71921	<0.25
PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	<10.0
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0
SELENIUM MG/KG	01148	<1.0
BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLORO BENZENE UG/KG	34539	<20.0
1,3-DICHLORO BENZENE UG/KG	34569	<20.0
1,4-DICHLORO BENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0

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ANALYSIS

STORET RESULT

PAGE 4

CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0

COMMENTS:

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930441  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
 RELEASE DATE : 05/20/93 13:08:14  
 DT COLLECTED : 03/09/93 10:40:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SS-14

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	8.7
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34236	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930441  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
 RELEASE DATE : 05/20/93 13:08:14  
 DT COLLECTED : 03/09/93 10:40:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SS-14

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEPTANE,2,3,6-TRIMETHYL-		DETECTED
HEXANE,2,3,4-TRIMETHYL-		DETECTED
OCTANE,3-METHYL-		DETECTED
5-HEXEN-2-ONE,5-METHYL-		DETECTED

SILVER MG/KG	59
ALUMINUM MG/KG	1,600
BARIUM MG/KG	13
BERYLLIUM MG/KG	0.4
CADMIUM MG/KG	1.3
COBALT MG/KG	42
CHROMIUM MG/KG	190
COPPER MG/KG	300
MANGANESE MG/KG	1,800



\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930441  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
 RELEASE DATE : 05/20/93 13:08:14  
 DT COLLECTED : 03/09/93 10:40:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SS-14

ANALYSIS

STORET RESULT

PAGE 3

MOLYBDENUM MG/KG		<2.0
NICKEL MG/KG		71
LEAD MG/KG		48
ANTIMONY MG/KG		<5.0
TIN MG/KG		650
THALLIUM MG/KG		<50
VANADIUM MG/KG		<2.0
ZINC MG/KG		220
MERCURY MG/KG	71921	<0.25
PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	<10.0
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0
SELENIUM MG/KG	01148	<0.5
BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0

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 STATION CODE : SS-14

ANALYSIS	STORET	RESULT
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0

PAGE 4

COMMENTS:

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SAMPLE NUMBER : 0310930442  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

WEDNESDAY MAY 26TH, 1993  
 RELEASE DATE : 05/26/93 11:18:21  
 DT COLLECTED : 03/09/93 10:45:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SS-15

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	4.0
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 STATION CODE : SS-15

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34584	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
5-HEXEN-2-ONE,5-METHYL-		DETECTED
CINEOLE(VAN)		DETECTED
BENZOIC ACID, AMMONIUM SALT		DETECTED
BENZENEPROPANOIC ACID		DETECTED
OCTANE,2,7-DIMETHYL-		DETECTED

SILVER MG/KG	4.5
ALUMINUM MG/KG	740
BARIUM MG/KG	14
BERYLLIUM MG/KG	<0.3
CADMIUM MG/KG	<1.0
COBALT MG/KG	2.6
CHROMIUM MG/KG	19
COPPER MG/KG	23

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 SAMPLE TYPE :

WEDNESDAY MAY 26TH, 1993  
 RELEASE DATE : 05/26/93 11:18:21  
 DT COLLECTED : 03/09/93 10:45:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SS-15

ANALYSIS

STORET RESULT

PAGE 3

MANGANESE MG/KG		260
MOLYBDENUM MG/KG		<2.0
NICKEL MG/KG		8.6
LEAD MG/KG		22
ANTIMONY MG/KG		<5.0
TIN MG/KG		66
THALLIUM MG/KG		<50
VANADIUM MG/KG		<2.0
ZINC MG/KG		150
MERCURY MG/KG	71921	<0.25
PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	19.2
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0
SELENIUM MG/KG	01148	<0.5
BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0

\*\*\*\*\*  
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WEDNESDAY MAY 26TH, 1993  
 RELEASE DATE : 05/26/93 11:18:21  
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 SAMPLE MEDIUM : SED  
 STATION CODE : SS-15

ANALYSIS

STORET RESULT

PAGE 4

TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0

COMMENTS:

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 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
 RELEASE DATE : 05/20/93 13:08:15  
 DT COLLECTED : 03/09/93 11:10:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-13

ANALYSIS

STORET RESULT

ANALYSIS	STORET	RESULT
ARSENIC MG/KG	01003	0.9
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

\*\*\*\*\*  
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 STATION CODE : SD-13

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEPTANE,2,3,6-TRIMETHYL-		DETECTED
OCTANE,3,5-DIMETHYL-		DETECTED
OCTANE,3-METHYL-		DETECTED
HEXANE,2-BROMO-		DETECTED
5-HEXEN-2-ONE,5-METHYL-		DETECTED
UNDECANE,4,7-DIMETHYL-		DETECTED

SILVER MG/KG	<3.0
ALUMINUM MG/KG	4000
BARIUM MG/KG	8.0
BERYLLIUM MG/KG	<0.3
CADMIUM MG/KG	<1.0
COBALT MG/KG	<2.0
CHROMIUM MG/KG	9.7



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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930443  
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 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
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 SAMPLE MEDIUM : SED  
 STATION CODE : SD-13

ANALYSIS

STORET RESULT

PAGE 3

COPPER MG/KG		20
MANGANESE MG/KG		45
MOLYBDENUM MG/KG		<2.0
NICKEL MG/KG		6.0
LEAD MG/KG		<5.0
ANTIMONY MG/KG		<5.0
TIN MG/KG		<50
THALLIUM MG/KG		<50
VANADIUM MG/KG		2.6
ZINC MG/KG		21
MERCURY MG/KG	71921	<0.25
PCB 1016 UG/KG	39514	<10.0
PCB 1221 UG/KG		<10.0
PCB 1232 UG/KG	39495	<10.0
PCB 1242 UG/KG	39499	<10.0
PCB 1248 UG/KG	39503	<10.0
PCB 1254 UG/KG	39507	<10.0
PCB 1260 UG/KG	39511	<10.0
PCB 1262 UG/KG		<10.0
SELENIUM MG/KG	01148	<0.5
BENZENE UG/KG	34237	<20.0
BROMODICHLOROMETHANE UG/KG	34330	<20.0
BROMOFORM UG/KG	34290	<20.0
BROMOMETHANE UG/KG	34416	<20.0
CARBON TETRACHLORIDE UG/KG	34299	<20.0
CHLOROBENZENE UG/KG	34304	<20.0
CHLOROETHANE UG/KG	34314	<20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579	<20.0
CHLOROFORM UG/KG	34318	<20.0
CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930443  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

THURSDAY MAY 20TH, 1993  
 RELEASE DATE : 05/20/93 13:08:15  
 DT COLLECTED : 03/09/93 11:10:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SD-13

ANALYSIS

STORET RESULT

ANALYSIS	STORET	RESULT
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0

PAGE 4

COMMENTS:

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930444 WEDNESDAY MAY 26TH, 1993  
 CHARGE NUMBER : CE RELEASE DATE : 05/26/93 11:18:21  
 COLLECTED BY : IND DT COLLECTED : 03/09/93 11:32:00  
 COUNTY : DARLINGTON SAMPLE MEDIUM : SED  
 SAMPLE DESCRIPTION : NUCOR STEEL STATION CODE : SE-16  
 SAMPLE TYPE :

ANALYSIS STORET RESULT

ARSENIC MG/KG	01003	24
N-NITROSODIMETHYLAMINE UG/KG	34441	<300
ANILINE UG/KG	78866	<300
PHENOL UG/KG	34695	<300
BIS(2-CHLOROETHYL)ETHER UG/KG	34276	<300
2-CHLOROPHENOL UG/KG	34589	<300
1,3-DICHLOROBENZENE UG/KG	34569	<300
1,4-DICHLOROBENZENE UG/KG	34574	<300
BENZYL ALCOHOL UG/KG	75212	<300
1,2-DICHLOROBENZENE UG/KG	34539	<300
2-METHYLPHENOL UG/KG	78872	<300
BIS(2-CHLOROISOPROPYL)ETHER UG/KG	34286	<300
4-METHYLPHENOL UG/KG	78803	<300
N-NITROSODI-N-PROPYLAMINE UG/KG	34431	<300
HEXACHLOROETHANE UG/KG	34399	<300
NITROBENZENE UG/KG	34450	<300
ISOPHORONE UG/KG	34411	<300
2-NITROPHENOL UG/KG	34594	<300
2,4-DIMETHYL PHENOL UG/KG	34609	<300
BENZOIC ACID UG/KG	75315	<300
BIS(2-CHLOROETHOXY)METHANE UG/KG	34281	<300
2,4-DICHLOROPHENOL UG/KG	34604	<300
1,2,4-TRICHLOROBENZENE UG/KG	34554	<300
NAPHTHALENE UG/KG	34445	<300
4-CHLOROANILINE UG/KG	78867	<300
HEXACHLOROBUTADIENE UG/KG	39705	<300
4-CHLORO-3-METHYL PHENOL UG/KG		<300
2-METHYLNAPHTHALENE UG/KG	78868	<300
HEXACHLOROCYCLOPENTADIENE UG/KG	34389	<300
2,4,6-TRICHLOROPHENOL UG/KG	34624	<300
2,4,5-TRICHLOROPHENOL UG/KG	78401	<300
2-CHLORONAPHTHALENE UG/KG	34584	<300
2-NITROANILINE UG/KG	78299	<300
DIMETHYL PHTHALATE UG/KG	34344	<300
ACENAPHTHYLENE UG/KG	34203	<300
2,6-DINITROTOLUENE UG/KG	34629	<300
3-NITROANILINE UG/KG	78869	<300
ACENAPHTHENE UG/KG	34208	<300
4-NITROPHENOL UG/KG	34649	<300
DIBENZOFURAN UG/KG	75647	<300
2,4-DINITROTOLUENE UG/KG	34614	<300

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 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930444  
 CHARGE NUMBER : CE  
 COLLECTED BY : WIND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

WEDNESDAY MAY 26TH, 1993  
 RELEASE DATE : 05/26/93 11:18:21  
 DT COLLECTED : 03/09/93 11:32:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SL-16

ANALYSIS

STORET RESULT

PAGE 2

DIETHYL PHTHALATE UG/KG	34339	<300
4-CHLOROPHENYL PHENYL ETHER UG/KG	34644	<300
FLUORENE UG/KG	34384	<300
4-NITROANILINE UG/KG	78870	<300
AZOBENZENE UG/KG		<300
2-METHYL-4,6-DINITROPHENOL UG/KG		<300
N-NITROSODIPHENYLAMINE UG/KG	34436	<300
4-BROMOPHENYL PHENYL ETHER UG/KG	34639	<300
HEXACHLOROBENZENE UG/KG	39701	<300
PENTACHLOROPHENOL UG/KG	78873	<300
PHENANTHRENE UG/KG	34464	<300
ANTHRACENE UG/KG	34223	<300
DI-N-BUTYLPHTHALATE UG/KG	39112	<300
FLUORANTHENE UG/KG	34379	<300
PYRENE UG/KG	34472	<300
BUTYLBENZYL PHTHALATE UG/KG	78800	<300
3,3'-DICHLOROBENZIDINE UG/KG	34634	<300
BENZO(A)ANTHRACENE UG/KG	34529	<300
CHRYSENE UG/KG	34323	<300
BIS(2-ETHYLHEXYL)PHTHALATE UG/KG	39102	<300
DI-N-OCTYLPHTHALATE UG/KG	34599	<300
BENZO(B)FLUORANTHENE UG/KG	34233	<300
BENZO(K)FLUORANTHENE UG/KG	34245	<300
BENZO(A)PYRENE UG/KG	34250	<300
INDENO(1,2,3-CD)PYRENE UG/KG	34406	<300
DIBENZO(A,H)ANTHRACENE UG/KG	34559	<300
BENZO(GHI)PERYLENE UG/KG	34524	<300
HEPTANE,3,5-DIMETHYL-		DETECTED
HEPTANE,2,3-DIMETHYL-		DETECTED
HEXANE,2,3,4-TRIMETHYL-		DETECTED
HEXANE,2,4-DIMETHYL-		DETECTED
OCTANE,2,3,7-TRIMETHYL-		DETECTED
5-HEXEN-2-ONE,5-METHYL-		DETECTED
UNDECANE,5,6-DIMETHYL-		DETECTED
CYCLOHEXANE,1-METHYL-2-PROPYL-		DETECTED
DECANE		DETECTED
CYCLOHEXANE,BUTYL-		DETECTED
DECANE,2,4-DIMETHYL-		DETECTED
UNDECANE,3,8-DIMETHYL-		DETECTED
OTHER COMPOUNDS DETECTED		SEE COMMENTS

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930444  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

WEDNESDAY MAY 26TH, 1993  
 RELEASE DATE : 05/26/93 11:18:21  
 DT COLLECTED : 03/09/93 11:32:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SL-16

ANALYSIS

STORET RESULT

PAGE 3

SILVER MG/KG	180
ALUMINUM MG/KG	3400
BARIUM MG/KG	64
BERYLLIUM MG/KG	0.7
CADMIUM MG/KG	1.1
COBALT MG/KG	29
CHROMIUM MG/KG	290
COPPER MG/KG	900
MANGANESE MG/KG	4500
MOLYBDENUM MG/KG	39
NICKEL MG/KG	280
LEAD MG/KG	<5.0
ANTIMONY MG/KG	<5.0
TIN MG/KG	760
THALLIUM MG/KG	<50
VANADIUM MG/KG	<2.0
ZINC MG/KG	200
MERCURY MG/KG	71921 <0.25
PCB 1016 UG/KG	39514 <10.0
PCB 1221 UG/KG	<10.0
PCB 1232 UG/KG	39495 <10.0
PCB 1242 UG/KG	39499 299
PCB 1248 UG/KG	39503 <10.0
PCB 1254 UG/KG	39507 <10.0
PCB 1260 UG/KG	39511 <10.0
PCB 1262 UG/KG	<10.0
SELENIUM MG/KG	01148 <0.5
BENZENE UG/KG	34237 <20.0
BROMODICHLOROMETHANE UG/KG	34330 <20.0
BROMOFORM UG/KG	34290 <20.0
BROMOMETHANE UG/KG	34416 <20.0
CARBON TETRACHLORIDE UG/KG	34299 <20.0
CHLOROBENZENE UG/KG	34304 <20.0
CHLOROETHANE UG/KG	34314 <20.0
2-CHLOROETHYL VINYL ETHER UG/KG	34579 <20.0
CHLOROFORM UG/KG	34318 <20.0

\*\*\*\*\*  
 \* SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL \*  
 \* ANALYTICAL SERVICES DIVISION LABORATORY REPORT \*  
 \*\*\*\*\*

SAMPLE NUMBER : 0310930444  
 CHARGE NUMBER : CE  
 COLLECTED BY : IND  
 COUNTY : DARLINGTON  
 SAMPLE DESCRIPTION : NUCOR STEEL  
 SAMPLE TYPE :

WEDNESDAY MAY 26TH 1993  
 RELEASE DATE : 05/26/93 11:18:21  
 DT COLLECTED : 03/02/93 11:32:00  
 SAMPLE MEDIUM : SED  
 STATION CODE : SE-16

ANALYSIS

STORET RESULT

PAGE 4

CHLOROMETHANE UG/KG	73304	<20.0
DIBROMOCHLOROMETHANE UG/KG	78195	<20.0
1,2-DICHLOROBENZENE UG/KG	34539	<20.0
1,3-DICHLOROBENZENE UG/KG	34569	<20.0
1,4-DICHLOROBENZENE UG/KG	34574	<20.0
1,1-DICHLOROETHANE UG/KG	34499	<20.0
1,2-DICHLOROETHANE UG/KG	34534	<20.0
1,1-DICHLOROETHENE UG/KG	34504	<20.0
TRANS-1,2-DICHLOROETHENE UG/KG	34549	<20.0
1,2-DICHLOROPROPANE UG/KG	34544	<20.0
CIS-1,3-DICHLOROPROPENE UG/KG	34702	<20.0
TRANS-1,3-DICHLOROPROPENE UG/KG	34697	<20.0
ETHYLBENZENE UG/KG	34374	<20.0
METHYLENE CHLORIDE UG/KG	34426	<20.0
1,1,2,2-TETRACHLOROETHANE UG/KG	34519	<20.0
TETRACHLOROETHENE UG/KG	34478	<20.0
TOLUENE UG/KG	34483	<20.0
1,1,1-TRICHLOROETHANE UG/KG	34509	<20.0
1,1,2-TRICHLOROETHANE UG/KG	34514	<20.0
TRICHLOROETHENE UG/KG	34487	<20.0
TRICHLOROFLUOROMETHANE UG/KG	34491	<20.0
VINYL CHLORIDE UG/KG	34495	<20.0
OCTANE, 3,5-DIMETHYL-		DETECTED

COMMENTS:

CYCLOHEXANE, 1-METHYL-4-(1-METHYLETHENYL)-, TRANS-

DHEC USE ONLY:  
I.D.# \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
Instructions for completing  
this Form on reverse side.

## 1

notification of hazardous waste activity has been submitted to the Department according to the regulations promulgated under the Act.

B. Generator.

- (1) Mailing address of place of generation: PO BOX 525  
DARLINGTON SC 29532
- (2) Location of place of generation: HIGHWAY 52  
6 MILES N. OF DARLINGTON
- (3) Phone number at place of generation: 803 393 5841
- (4) County in which place of generation is located: DARLINGTON
- (5) General Description of generator's operations at the location of generation:

MELT FERROUS SCRAP IN ELECTRIC  
ARC FURNACES, CONTINUOUSLY CAST  
STEEL BILLET & ROLL THEM  
INTO MERCHANT BAR STEEL  
PRODUCTS.

- (6) Types of hazardous waste(s) generated at location: (Check all applicable boxes.)

- (a) Ignitable ☐  
(b) Corrosive ☐  
(c) Reactive ☒  
(d) Toxic ☐  
(e) Listed ☐

- (7) Estimated amount of hazardous waste generated at location annually in pounds (pounds/year): 12,000,000.

(8) For each hazardous waste produced at the location submit a completed Hazardous Waste Information Form (DHEC Form No. 1986).

C. Transporter.

- (1) General description of kind of transportation transporter is engaged in:

- (2) State and county in which the transporter has his principal place of business:

State

County

- (3) Location, mailing address, and phone number of all terminals or other transportation facilities the transporter maintains within the State:

- (4) Identification code(s) if transporter has previously been assigned a hazardous waste identification code by the Federal Environmental Protection Agency or any other state. Also include source of I.D. Code and by whom such codes were assigned:

- (5) Interstate Commerce Commission Number or South Carolina Public Service Commission Number (state whether number is ICC or PSC):

- (6) Types of hazardous wastes handled by the transporter: (Check all applicable boxes.)

- (a) Ignitable ☐  
(b) Corrosive ☐  
(c) Reactive ☐  
(d) Toxic ☐  
(e) Listed ☐



(7) Estimated amount of hazardous wastes handled annually by transporter in pounds (pounds/year): \_\_\_\_\_

D. Hazardous Waste Facilities.

(1) Name of facility: \_\_\_\_\_

(2) Mailing address of facility: \_\_\_\_\_

(3) Location of facility: \_\_\_\_\_

(4) Phone number of facility: \_\_\_\_\_

(5) County in which facility is located: \_\_\_\_\_

(6) Type of operations conducted at the facility: (Check all applicable boxes).

(a) Treatment of hazardous waste ☐

(b) Storage of hazardous waste ☐

(c) Disposal of hazardous waste ☐

(7) Submit on a separate sheet of paper a description of the hazardous waste activities conducted at the facility.

(8) Types of hazardous wastes handled at the facility: (Check all applicable boxes.)

(a) Ignitable ☐

(b) Corrosive ☐

(c) Reactive ☐

(d) Toxic ☐

(e) Listed ☐

(9) Estimated amount of hazardous waste treated, stored, or disposed annually at the facility in pounds (pounds/year): \_\_\_\_\_

DHEC USE ONLY:

I.D.#   /  /  /  /  /    
Waste Code             

Instructions for completing  
this Form on reverse side.

HAZARDOUS WASTE INFORMATION

- (1) Name of generator: NUCOR STEEL
- (2) Place of generation: DARLINGTON COUNTY
- (3) General description of hazardous waste, including process producing waste:  
ELECTRIC ARC FURNACE FUME THAT  
IS CAPTURED BY A BAG HOUSE.
- (4) Description of the hazardous waste: THE DUST IS  
MAINLY IRON OXIDE BUT HAS OXIDES  
OF OTHER METALS PRESENT. SI,  
Ca, Zn, Pb, Cr, Cu, ETC.
- (5) Check the hazardous waste characteristics the waste exhibits as identified in Section C of the Emergency Hazardous Waste Regulation; or if the waste is listed as a hazardous waste, check "Listed"; or if the waste has been declared hazardous by the generator, check the hazardous waste characteristic(s) as identified in Section C of the Emergency Hazardous Waste Regulation the generator suspects the waste to exhibit.
- |               |                                     |
|---------------|-------------------------------------|
| (a) Ignitable | <input type="checkbox"/>            |
| (b) Corrosive | <input type="checkbox"/>            |
| (c) Reactive  | <input checked="" type="checkbox"/> |
| (d) Toxic     | <input type="checkbox"/>            |
| (e) Listed    | <input type="checkbox"/>            |
- (6) Attach any information obtained from the testing of the waste performed to determine their hazard. If the generator declares the waste to be hazardous attach information on what basis the decision to declare the waste hazardous was made.
- (7) Estimated amount of the waste produced per year in pounds (pounds/waste):  
12,000,000.
- (8) Describe the method(s) by which this waste is currently being treated, stored, or disposed, including the name and address of any facility to which the waste is being sent.

IT IS PRESENTLY BEING DISPOSED  
OF IN THE COUNTY DUMP.

now being sent to SCA Forward  
gm

(9) Certification: I hereby certify (or declare) that the information provided herein is complete and correct to the best of my knowledge. I understand that all information on this Form may be made available to the public except those portions entitled to confidentiality as provided by Section 6B of the South Carolina Hazardous Waste Management Act. I am authorized to sign official documents for the generator named in (1) above.

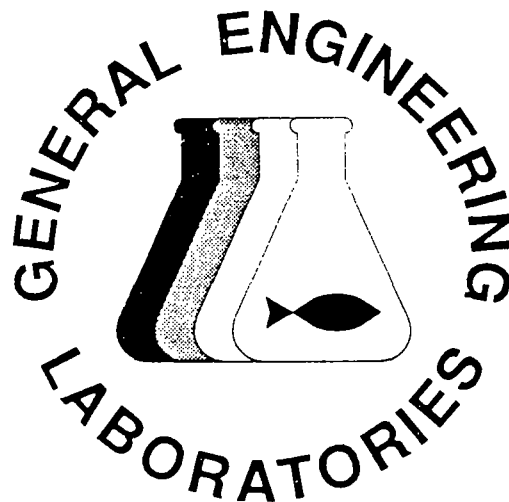
[Signature]  
Signature

Division Controller  
Name and Title

December 17, 1979  
Date

NOTE: Additional copies of this Form may be reproduced locally as needed.

PRELIMINARY SITE ASSESSMENT  
NUCOR STEEL  
DARLINGTON, SOUTH CAROLINA



Submitted to:

South Carolina Department of  
Health and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201

Submitted by:

General Engineering Laboratories  
2040 Savage Road  
Charleston, South Carolina 29414

Submittal Date: August 14, 1990

**PRELIMINARY SITE ASSESSMENT  
NUCOR STEEL  
DARLINGTON, SOUTH CAROLINA  
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Figures

- 1 Soil Boring Locations


Appendices

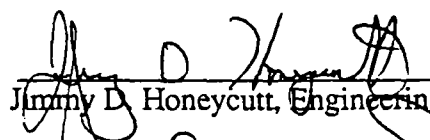
- I Analysis of Slag, Scale, Sludge and Emission Control Dust
- II Toxicity Characteristic Leaching Procedure (TCLP) Results for Slag, Scale, Sludge and Emission Control Dust
- III Analysis of Soil Samples

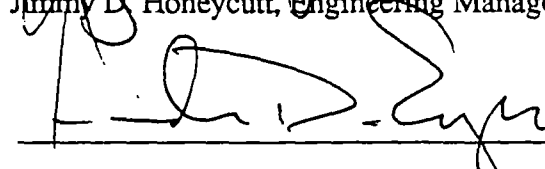
## Signature Page

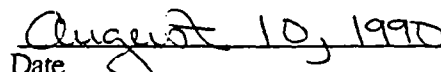
This report entitled "Preliminary Site Assessment, Nucor Steel, Darlington, South Carolina" has been prepared under the supervision of Carey J. Bocklet at the request of and for the exclusive use of Nucor Steel. It has been prepared in accordance with accepted quality control practices and it has been reviewed by the undersigned reviewers."

### GENERAL ENGINEERING LABORATORIES

  
\_\_\_\_\_  
Carey J. Bocklet, Chemical Engineer

  
\_\_\_\_\_  
Jimmy D. Honeycutt, Engineering Manager

  
\_\_\_\_\_  
Andrew D. Eyer, P.G., Project Hydrogeologist

  
\_\_\_\_\_  
Date

**PRELIMINARY SITE ASSESSMENT  
NUCOR STEEL  
DARLINGTON, SOUTH CAROLINA**

**Executive Summary**

This document presents the results of a preliminary assessment of the Nucor Steel site in Darlington, South Carolina. The purpose of the study was to provide baseline environmental data for soils, and to determine the potential of impact, if any, to the soils and groundwater resulting from past plant operations.

Waste materials identified as slag, scale, contact cooling water sludge, sculls, and emission control dust were at one time incorporated into much of the fill material at the site. Based on Toxicity Characteristic Leaching Procedure (TCLP) analysis of these wastes, with the exception of the emission control dust, these materials are not hazardous wastes. The emission control dust, however, is a K061 listed hazardous waste, and based on TCLP analysis of a sample of this material it has the potential to leach and cause lead impact to groundwater at the site. The other metals ascertained in the sample of emission dust do not have this potential.

Soils collected from boring locations near fill areas in the vicinity of the main plant area were found to contain some metals in concentrations above background levels. Groundwater monitoring wells will be installed in strategic locations near these fill areas to determine the quality of groundwater underlying the plant.

Soils collected at the water table from boreholes located near Nucor Creek and Nucor Swamp indicate the presence of hydrocarbons and elevated metal concentrations in the soils apparently as a result of the former discharge of contact cooling water in this area. However, impact appears to be confined to the area in the vicinity of Nucor Creek and Nucor Swamp, since analyses of soils collected at the water table further downstream near Nucor Pond do not detect the presence of hydrocarbons or metals. Further, there is no indication of impact to Black Creek. Monitoring wells will be installed in these areas to determine whether or not groundwater has been impacted by metals or hydrocarbons resulting from past discharges of contact cooling water.

Soil samples collected from two off-site emission control dust disposal areas contain elevated concentrations of metals. However, based on analysis of soils collected at the depth of the water table, there does not appear to be impact to the groundwater underlying these areas.

**PRELIMINARY SITE ASSESSMENT  
NUCOR STEEL  
DARLINGTON, SOUTH CAROLINA**

**I. Introduction**

This document presents the results of a preliminary site assessment requested by Mr. Thomas Leydic for Nucor Steel in Darlington, South Carolina. The purpose of the study was to provide baseline environmental data for soils, and to determine the potential of impact, if any, to the soils and groundwater as a result of previous plant operations.

**A. Facility Background**

The Nucor Steel site is located in Darlington, South Carolina, and occupies approximately 230 acres on the east side of U.S. Highway 52 North. Nucor began operations at their Darlington location in 1969. Prior to the construction of the facility, the property was used for agricultural purposes. The property is bounded to the northeast by Black Creek and to the southwest by Lucas Creek. Since startup, the plant has operated continuously as a steel manufacturing facility converting scrap steel into products such as angle iron, rounds, channels, and flat bars.

Because Nucor does not have access to public water utilities, their potable and process water is supplied by onsite wells. Nucor operates a waste treatment system for sanitary sewer discharges. The treated wastewater from this system is discharged to Lucas Creek under NPDES permit number SC0035238. Stormwater drains on Nucor's property also discharge to Lucas Creek.

Nucor generates both hazardous and nonhazardous waste materials from the steel manufacturing process. The hazardous wastes generated are emission control dust, and waste Varsol, produced in a degreasing operation. The waste Varsol degreaser is shipped off-site for reclamation. The emission control dust is shipped to fertilizer manufacturing companies for use as a raw material.

However, through discussions with plant personnel during the recent orientation of the new manager for this facility it was learned that up until the mid 1970's, some emission control dust was used as a fill material at the plant site. Nucor employees also identified two emission control dust deposits, also made in the early to middle 1970's, in a field near the plant site. These deposits are shown in Figure 1.

✓The nonhazardous wastes generated at this site include waste oil, scale, slag, contact cooling water sludge (sludge) and skulls. The waste oil is shipped off-site for recycling. The scale, which is an iron oxide material, is sold as a strengthener or binder in concrete. The slag is processed at the Nucor site by an outside contractor for use as road surfacing material. The sludge material is composed of scale, slag and traces of lubricating oil. Nucor has received permission from the South Carolina Department of Health and Environmental Control (DHEC) to land farm the sludge. Skulls, composed of steel and slag, are the solidified residue which forms on the inside of the ladles used to hold and pour the molten steel. These skulls are either recycled in the steel manufacturing process or processed onsite along with the slag for use as road surfacing material. ✓

✓As with the emission control dust, Nucor personnel also identified several areas onsite where the slag, scale, sludge and skulls were incorporated into the fill material. The approximate locations of these fill areas, as reported by Nucor personnel, are shown in Figure 1. ✓

✓Nucor operates several concrete contact and non-contact cooling water ponds, which are shown in Figure 1. Most of the cooling water is recycled to various plant processes. However, overflows from these ponds do result in periodic discharges. The contact cooling pond overflows contain the sludge material defined as slag, scale, and lubricating oil. The non-contact cooling water is not thought to be impacted and therefore overflows from non-contact cooling water ponds do not represent the potential for environmental impact. However, analysis of this water would be necessary to confirm that it does not contain significant concentrations of potential contaminants. ✓

✓Until recently, overflow from the contact cooling ponds was piped via reinforced concrete pipe (RCP) to the northeast side of the plant and discharged onto the land surface. This discharge stream is referred to in Figure 1 as Nucor Creek. Once this discharge was identified as a potential source of environmental impact, Nucor diverted this flow to an open-top, in-ground concrete holding tank located on the northeast side of the plant, as shown in Figure 1. Nucor Creek flows into Nucor Swamp, where it empties into Nucor Pond, located approximately 1300 feet east of the discharge pipe. ✓ These areas are also identified in Figure 1.

✓The overflows from the non-contact cooling ponds are piped to both Lucas Creek and Nucor Pond. ✓



✓The cooling ponds are shut-down twice a year for cleaning and routine maintenance. During shut-down the water from the contact cooling water ponds is discharged to the concrete in-ground tank identified above. The water from the non-contact cooling water ponds is then used to fill the contact cooling water ponds after they are cleaned. ✓

## B. Geology and Hydrogeology

The Nucor site is located in the Middle Coastal Plain Physiographic Province of South Carolina. The coastal plain is composed of mostly unconsolidated and lithified sedimentary strata overlying a basement of igneous and metamorphic rocks. The total thickness of strata underlying the site is approximately 600 to 700 feet.

Previous regional studies and onsite investigations of the facility indicate that the soils at the site are composed mostly of deltaic sand and clay sediments of the Cretaceous age Black Creek Formation, overlain by mostly fill material. Metal and steel debris are also present at this site.

Black Creek Formation sediments comprise the uppermost aquifer, the Black Creek Aquifer, which is approximately eighty feet thick in the vicinity of the Nucor site and dips in a southeasterly direction towards the Atlantic Ocean. These strata overlie a regionally extensive clay confining layer. This confining layer separates the Black Creek Aquifer from the Cretaceous Middendorf Aquifer System.

Due to the topography at the site, the water table is encountered at depths ranging from one foot below the land surface in the vicinity of Black Creek to greater than fifteen feet in the vicinity of the main plant area. Much of the developed portion of the site appears topographically as a northwest-southeast trending knoll which generally dips to the northeast and the southwest. Therefore, groundwater underlying portions of the site most likely flows towards Black Creek and other portions toward Lucas Creek.

## **II. Preliminary Site Investigation**

The areas described in Section I.A as containing fill materials are shown in Figure 1. Since these areas are potential sources of impact to soils and groundwater, Nucor Steel requested a preliminary site investigation to determine the potential of impact, if any, from previous plant operations.

#### A. Analysis of Waste Materials

Samples of slag, scale, sludge and emission control dust were analyzed for the thirteen priority pollutant metals to determine the major constituents in these waste materials for use in analysis of soil samples subsequently collected at the site. Samples of the sculls were not analyzed due to their large size and because their disposal is not thought to be a source for potential impact.

The slag, scale, and sludge were found to contain significant concentrations of arsenic, copper, cadmium, chromium, lead, nickel, and zinc. These analytical results are presented in Appendix I. The results of analysis of a sample of emission control dust is identified in Appendix I as 'SB-12 Surface'. This sample was collected from the surface soils surrounding a baghouse used for the collection of emission control dust. However, these soils did not contain significant concentrations of metals typically characteristic of emission control dust. The metal concentrations detected in the surface soils collected from emission control dust disposal areas represented by soil borings SB-19 or SB-20, discussed later in this report, are more representative of emission control dust.

Because of the elevated concentrations of total cadmium, chromium, and lead in the slag, scale, and sludge, these materials were analyzed using the Toxicity Characteristic Leaching Procedure (TCLP). Emission control dust, which is designated as a K061 listed hazardous waste due to the presence of hexavalent chromium, lead, and cadmium, was also analyzed using the TCLP. Surface soils from sample location SB-19 were used for this TCLP analysis of the emission control dust.

To determine the metals to be analyzed for TCLP, the total metal concentrations detected in the slag, scale, sludge, and emission control dust were divided by the twenty-fold dilution factor used in the TCLP model to provide an indication of the concentration of the metals that could potentially be contained in the leachate from these materials. Based on the twenty-fold dilution factor, it was determined that these materials could potentially be characteristically hazardous based on total concentrations of the following constituents:

Waste Material

Slag  
Scale  
Sludge  
Emission Control Dust

TCLP Constituent

Chromium *Lead?*  
Chromium *Lead?*  
Chromium and Cadmium *Lead?*  
Chromium, Cadmium and Lead

✓ The TCLP results, presented in Appendix II for the above referenced metals, confirm that the slag, scale, and sludge are not characteristic hazardous wastes. The emission control dust generated from Nucor's operations, a listed hazardous waste generally due to its potential for leachable concentrations of cadmium, chromium, and lead, appears only to exceed the regulatory limit for lead concentrations in the TCLP extract. ✓

B. Background Conditions

Representative soil samples were collected from borings identified in Figure 1 as SB-16, SB-17, and SB-18. These soil borings were constructed in areas which, according to Nucor personnel, had not been filled with slag, scale, sludge, skulls, or emission control dust and are thought to be representative of background conditions in the area. The analytical results for these samples are provided in Appendix III. A summary of the background metal concentrations for the samples analyzed is shown below.

**Background Conditions**

<u>Metal</u>	<u>Range of Background Metal Concentrations (ppm)</u>
Arsenic	<1.0 - 3.1
Cadmium	<0.5
Chromium	2.5 - 13.0
Copper	<1.0 - 5.2
Lead	<1.0 - 6.4
Nickel	2.2 - 6.1
Zinc	5.8 - 35.0

These background concentrations were used in this assessment for evaluating impact to soils collected from areas which have debris and steel by-products incorporated into the fill material. Although these concentrations will be considered background for this assessment, analysis of additional background soils will be needed to fully define background conditions.

### C. Fill Areas Surrounding Plant

Initially, the intent of the investigation was to confirm the presence of the reported fill materials and determine the depth and lateral extent of the reported fill areas. However, after inspecting the site with Nucor personnel, it was determined that the areas would be difficult to delineate due to obstructions such as buildings, steel debris, and skulls.

Therefore, to confirm the presence of the fill material and to determine the potential for impact to the soils and groundwater, fourteen boreholes were strategically located near areas surrounding the main plant which were identified by Nucor personnel as having been back filled with slag, scale, sludge, scull, or emission control dust. These boring locations are designated in Figure 1 as SB-1A through SB2-A and SB-4 through SB-14.

The boreholes were to be constructed to a depth of approximately five feet. However, in most cases the boreholes could not be advanced more than one to two feet due to obstructions, such as skulls, underlying the fill areas. In most of the locations where the soil borings were constructed, the fill material containing steel by-product wastes was buried, and could not be identified from an inspection of the surface soils. In areas where slag and scale were disposed of, the subsurface soils contained small pieces of slag or scale which could be identified by close inspection. Subsurface soils impacted with the sludge were characterized by a black discoloration. Soils impacted with emission control dust were identified as containing visible grey dust fines.

The soil samples were analyzed for the seven metals determined to be characteristic of the slag, scale, sludge, and emission control dust. The analytical results for these samples are presented in Appendix III.

Inspection and analysis of soils collected from boring locations SB1-A and SB1-B indicate the fill material in these areas is a clean homogeneous clay that does not contain steel by-product wastes. However, metal concentrations above background levels were detected in soil samples collected from eleven of the fourteen borings constructed at the site to detect impact from disposal of steel by-product wastes. The following table summarizes this data.

Summary of Samples Collected in Fill Areas

<u>Boring Location</u>	<u>Depth</u>	<u>Metals Elevated Above Background</u>	<u>Reported Fill Material</u>
SB1-A and SB1-B	4 feet	No metals above background	clay
SB2-A	2 feet	Cr, Cu, Pb, Ni, Zn	slag
SB-4	5 feet	Cr, Cu	slag
SB-5	surface	As, Cr, Cu, Pb, Ni, Zn	sludge
SB-5	4 feet	Cu	sludge
SB-6	2 feet	Cu, Pb, Zn	dust/slag
SB-7	2 feet	No metals above background	scale/slag
SB-7	5 feet	No metals above background	scale/slag
SB-8	surface	As, Cd, Cr, Cu, Pb Ni, Zn	emission control dust
SB-8	6 feet	Pb, Zn	emission control dust
SB-9	1 foot	As, Cd, Cr, Cu, Pb Ni, Zn	emission control dust
SB-10	surface	Cu	sludge
SB-10	4 feet	As, Cr, Cu, Pb, Ni, Zn	sludge
SB-12	7 feet	Cd, Cr, Pb, Zn	emission control dust
SB-13	1 foot	As, Cd, Cr, Cu, Pb Ni, Zn	slag
SB-14	1.5 feet	As, Cr, Cu, Pb, Ni, Zn	slag

Soil boring SB-11 was constructed in an area near an empty above ground storage tank reported to have formerly contained lubricating oil. There were localized areas of surface soil around the tank which were stained with oil. The boring was advanced to a depth of approximately 3.5 feet. At this depth there were no discolored soils or odors indicative of hydrocarbons. Total petroleum hydrocarbons (TPH) were not detected in a

soil sample collected at the depth of completion at a method detection limit of 10 parts per million (ppm).

✓ D. Nucor Creek, Swamp, and Pond

✓ To investigate potential impact from discharges of contact cooling water, seven borings were constructed in the area surrounding Nucor Creek, Nucor Swamp, and Nucor Pond. These borings were constructed at the locations noted in Figure 1 as borings SB-15 and SB-21 through SB-26. Soil samples were collected, just above the water table at the depth of completion of each of these borings, and analyzed for the seven target metals and TPH. ✓

✓ Soil boring SB-15 and SB-26 were constructed adjacent to Nucor Creek where the surface soils were visually impacted from sludge contained in the discharged contact cooling water. Analysis of soil samples collected from these boreholes detected the presence of elevated concentrations of metals and hydrocarbons. Sample SB-26, located upgradient of Nucor Creek, was constructed in an area where the surface soils appeared to be visually impacted with sludge. ✓ However, analysis of a soil sample collected at the water table did not detect the presence of hydrocarbons or elevated concentrations of metals. Surface soils in the area surrounding Nucor Pond did not appear to be impacted. Analysis of soils collected from boreholes constructed in the vicinity of the Pond also did not detect impact.

Certificates of Analysis for soil samples SB-15 and SB-21 through SB-26 are included in Appendix III. The results of these analyses are summarized in the table below.

**Summary of Samples Collected Near Nucor  
Creek, Swamp, and Pond**

<u>Boring Location</u>	<u>Depth</u>	<u>TPH/Elevated Metal Concentrations Detected</u>
SB-15	1.5 feet	As, Cd, Cr, Cu, Pb, Ni, Zn, TPH
SB-26	1.0 feet	Cd, Cr, Cu, Pb, Zn, TPH
SB-21	1.0 feet	TPH
SB-22	1.0 feet	None
SB-23	4.5 feet	None
SB-24	3.5 feet	TPH
SB-25	4 feet	None

E. Off-Site Disposal of Emission Control Dust

In response to reports of former off-site disposal of emission control dust, soil borings SB-19 and SB-20 were constructed in the center of the two areas shown in Figure 1. Both of these areas are located in a field near the plant site. Soil samples were collected at the surface, at a depth of four feet and at the bottom of the borehole. Soil boring SB-19 was advanced to ten feet, but the water table was not encountered. Soil boring SB-20 encountered the water table at a depth of approximately seven feet.

Visual inspection of the two disposal areas revealed some emission control dust on the surface which had apparently formed into small nuggets. The subsurface soils collected at a depth of four feet contained grey dust fines, indicative of emission control dust. Laboratory analysis of the surface soil samples detected elevated concentrations of arsenic, cadmium, chromium, copper, lead, nickel, and zinc in the soils. With the exception of arsenic, these same metals were also detected at elevated levels in the soils collected at a depth of four feet. However, the soils collected from the depth of completion of the boreholes did not contain grey dust fines and analysis of these samples did not detect any impact. The analytical results for the soils collected from these areas are presented in Appendix III.

Since the emission control dust disposal area identified by soil boring SB-20 is located on a small knoll on the side of a soybean field, individual grab samples of the vegetation and surface soils in the vicinity of the site were collected and analyzed for the seven target metals. These sample locations are identified in Figure 1. As shown in this Figure, the nearest soybean plants to the disposal area are located approximately fifteen feet on the upgradient side of the area and no soybean plants are located downgradient of the disposal site. The nearest vegetation downgradient of the disposal site was a patch of weeds located at a distance of approximately seventy-five feet.

Four samples of soils and soybean plants were collected at a distance of at least 200 feet from the disposal site as shown in Figure 1. A composite of these four samples was analyzed, the results of which are thought to be representative of background conditions.

Certificates of Analysis for these samples are included in Appendix III. These findings are summarized in the following table:

**Comparison of Lead and Zinc Concentrations  
in Soil and Vegetation Surrounding Disposal Site Referenced by  
Soil Boring Location SB-20**

	<u>Background Composite</u>	<u>15 feet Up-gradient of Disposal Site</u>	<u>25 feet Up-gradient of Disposal Site</u>	<u>75 feet Down-gradient of Disposal Site</u>
Soil				
Zinc	13	190	150	400
Lead	5.7	43	33	100
Soybean				
Zinc	26	65	120	NA
Lead	4.7	4.5	7.4	NA
Weed				
Zinc	NA	NA	NA	240
Lead	NA	NA	NA	7.5

The soil samples collected from areas of the field surrounding the disposal site appear to contain slightly elevated levels of zinc and lead, when compared to background samples. Analysis of the weeds and soybean plants collected adjacent to the disposal site also detected slightly elevated zinc levels. However, in general, the amount of zinc in plants will be toxic to crops before the concentration in the plant tissues reaches a level that poses a problem to human or animal health.<sup>1</sup> The lead concentration detected in the soybeans and weeds is typical of the background levels. These results confirm that lead is not readily accumulated in plants.<sup>2</sup>

### III. Conclusions

Based on the results of the preliminary site assessment, the following conclusions are presented.

#### A. Areas within the Nucor Property Indicating Soil Impact

Analysis of the soils collected from eleven of the fourteen soil boring locations constructed near reported fill areas confirm the presence of steel by-products in fill

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<sup>1</sup> Land Application of Municipal Sludge, EPA Process Design Manual, October 1983, page 6-10.

<sup>2</sup> Ibid.



materials. However, with the exception of the emission control dust, the waste materials disposed of in these soils do not appear to be hazardous, based on the results of TCLP analyses.

✓ The analytical results for samples collected, just above the water table from soil borings constructed near Nucor Creek and Nucor Swamp indicate elevated concentrations of metals and hydrocarbons in the subsurface soils. These elevated concentrations are probably the result of discharges of contact cooling water to Nucor Creek. The extent and severity of any impact to groundwater has not been determined. However, it appears that groundwater impact, if any, is confined to the area immediately underlying and adjacent to Nucor Creek and Nucor Swamp, since analysis of soil samples collected just above the water table around Nucor Pond and up-gradient of Nucor Creek do not detect impact. ✓

Nucor has discontinued discharge of the contact cooling water to Nucor Creek. This flow has been diverted to the open-top, in-ground tank on the northeast side of the plant. Nucor plans to have the wastewater that has accumulated in this tank removed and disposed of in accordance with DHEC regulations and the tank inspected to insure that its operation does not result in future impact to underlying soils and groundwater.

As part of the second phase of this investigation, monitoring wells will be installed in strategic locations near the fill areas surrounding the plant and in the vicinity of Nucor Creek, Nucor Swamp, and Nucor Pond to determine the quality of groundwater underlying the site. The installation of these wells is discussed in a report entitled "Groundwater Assessment Plan" submitted by General Engineering Laboratories, with this report.

Following the completion of the groundwater assessment, a report will be submitted to DHEC which will discuss the results of the groundwater study and include recommendations for future actions in these areas. Also, Nucor is in the process of reviewing its operating permits and will submit any necessary permit applications and make any necessary process modifications or additions to insure that the plant operations do not impact the environment.

#### ✓ B. Off-Site Disposal of Emission Control Dust

✓ Analysis of soil samples collected at the surface and at a depth of four feet from soil borings located in the center of each of the two former off-site emission control dust disposal areas detected elevated metal concentrations which are typical of emission control

dust. However, the analysis of a soil sample collected from boring SB-19 at a depth of ten feet did not detect impact. Also, analysis of a soil sample collected from boring SB-20 just above the water table, at a depth of seven feet, gave no indication of impact.

Based on these results, there is no indication of impact to groundwater in either of these two former disposal areas. However, additional assessment will be conducted to determine the vertical and horizontal extent of impact to the soils in each of the areas.

Analysis of surface soils in the field surrounding the former disposal site in the vicinity of boring SB-20 appear to contain slightly elevated levels of zinc and lead, when compared to background samples. Lead concentrations detected in the soybeans and weeds are typical of vegetation in the background areas. Analysis of the weeds and soybean plants collected adjacent to the disposal site have detected slightly elevated zinc levels. However, published reports state that the level of zinc in plants will be toxic to crops before it reaches a level that poses a problem to human or animal health.



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

Molly F. Greene  
President

George C. Greene, P.E., Ph.D.  
Vice President  
SC Registration No. 9103

Laboratory Certifications:  
FL ES7156/87294  
NC 233  
SC 10129  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211

Date: 06/26/90

Contact: MR. FRANCIS P. MOOD

Released by:

*[Signature]*  
QA/QC Officer

cc/fc: NUCO/FP2

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	:	SLAG	SCALE	SLUDGE	SB 12 SURFACE
Lab ID	:	90060001	90060002	90060003	90060004
Sample Matrix	:	SOLID	SOLID	SOLID	SOLID
Date Collected	:	05/31/90	05/31/90	05/31/90	05/31/90
Date Received	:	06/01/90	06/01/90	06/01/90	06/01/90
Priority	:	Routine	Routine	Routine	Routine
Parameter Collected by	:	GEL	GEL	GEL	GEL

ANTIMONY	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
ARSENIC	3.2 ppm	26.0 ppm	43.0 ppm	<1.0 ppm
BERYLLIUM	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
CADMIUM	1.6 ppm	13.0 ppm	20.0 ppm	4.5 ppm
CHROMIUM	170 ppm	360 ppm	470 ppm	5.6 ppm
COPPER	67.0 ppm	1700 ppm	2300 ppm	4.6 ppm
LEAD	32.0 ppm	35.0 ppm	45.0 ppm	49.0 ppm
MERCURY	<0.20 ppm	<0.20 ppm	<0.20 ppm	<0.20 ppm
NICKEL	26.0 ppm	300 ppm	530 ppm	1.4 ppm
SELENIUM	<0.50 ppm	<0.50 ppm	<0.50 ppm	<0.50 ppm
SILVER	<1.0 ppm	1.2 ppm	2.5 ppm	<1.0 ppm
THALLIUM	<1.00 ppm	<1.00 ppm	<1.00 ppm	<1.00 ppm
ZINC	300 ppm	120 ppm	100 ppm	320 ppm
ACID DIGESTION	YES	YES	YES	YES
DIGESTION FOR MERCURY ANALYSIS	YES	YES	YES	YES



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

P. E.  
Inc.

C. Greene, P.E., Ph.D.  
resident  
gistration No. 9103

Laboratory Certifications:  
FL E37156/87294  
NC 233  
SC 10120  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.

P.O. BOX 11869

COLUMBIA, SC 29211

Contact: MR. FRANCIS P. MOOD

Released by:

Date: 07/25/90

QA/QC Officer

cc/fc: NUCO/TCLP3

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	:	060002-R	060003-R	060763-R	SLAG
		SCALE	SLUDGE	SB-19	
				SURFACE	
Lab ID	:	90071380	90071381	90071382	90071383
Sample Matrix	:	TCLP	TCLP	TCLP	TCLP
Date Collected	:	05/31/90	05/31/90	05/31/90	07/19/90
Date Received	:	07/20/90	07/20/90	07/20/90	07/20/90
Priority	:	Rush	Rush	Rush	Rush
Parameter Collected by	:	GEL	GEL	GEL	GEL

CADMIUM, TCLP		<0.5 ppm	<0.5 ppm	
CHROMIUM, TCLP	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
LEAD, TCLP			63.0 ppm	
TCLP EXTRACTION - SOLID	YES	YES	YES	YES



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

P. O. Box 30710  
Charleston, SC 29417

C. Greene, P.E., Ph.D.  
resident  
Registration No. 9103

Laboratory Certifications:  
FL E37156/87294  
NC 333  
SC 10120  
VA 00151  
NACTP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211

Contact: MR. FRANCIS P. MOOD

Released by:

Date: 07/25/90

QA/QC Officer

cc/fc: NUCO/TCLP3

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	: 060002-R	060003-R	060763-R	SLAG
	SCALE	SLUDGE	SB-19	
			SURFACE	
Lab ID	: 90071380	90071381	90071382	90071383
Sample Matrix	: TCLP	TCLP	TCLP	TCLP
Date Collected	: 05/31/90	05/31/90	05/31/90	07/19/90
Date Received	: 07/20/90	07/20/90	07/20/90	07/20/90
Priority	: Rush	Rush	Rush	Rush
Parameter Collected by	: GEL	GEL	GEL	GEL

CADMIUM, TCLP		<0.5 ppm	<0.5 ppm	
CHROMIUM, TCLP	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
LEAD, TCLP			63.0 ppm	
TCLP EXTRACTION - SOLID	YES	YES	YES	YES



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

P. me  
ent

C. Greene, P.E., Ph.D.  
resident  
gistration No. 9103

Laboratory Certifications:  
FL E37156/87294  
NC 233  
SC 10120  
VA 00151  
NACTP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211  
Contact: MR. FRANCIS P. MOOD

Date: 07/25/90  
Released by: *[Signature]*  
QA/QC Officer

cc/fc: NUCO/TCLP3 Project Manager: Carey J. Bocklet Page No.: 1

Sample ID	:	060002-R	060003-R	060763-R	SLAG
		SCALE	SLUDGE	SB-19	
				SURFACE	
Lab ID	:	90071380	90071381	90071382	90071383
Sample Matrix	:	TCLP	TCLP	TCLP	TCLP
Date Collected	:	05/31/90	05/31/90	05/31/90	07/19/90
Date Received	:	07/20/90	07/20/90	07/20/90	07/20/90
Priority	:	Rush	Rush	Rush	Rush
Parameter Collected by	:	GEL	GEL	GEL	GEL

CADMIUM, TCLP		<0.5 ppm	<0.5 ppm	
CHROMIUM, TCLP	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
LEAD, TCLP			63.0 ppm	
TCLP EXTRACTION - SOLID	YES	YES	YES	YES



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

Resident  
Registration No. 9103

C. Greene, P.E., Ph.D.  
Resident  
Registration No. 9103

Laboratory Certifications:  
FL E37156/87294  
NC 233  
SC 10120  
VA 00151  
NACTP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211  
Contact: MR. FRANCIS P. MOOD

Date: 07/25/90  
Released by: *[Signature]*  
QA/QC Officer

cc/fc: NUCQ/TCLP3 Project Manager: Carey J. Bocklet Page No.: 1

Sample ID	: 060002-R	060003-R	060763-R	SLAG
	SCALE	SLUDGE	SB-19	
			SURFACE	
Lab ID	: 90071380	90071381	90071382	90071383
Sample Matrix	: TCLP	TCLP	TCLP	TCLP
Date Collected	: 05/31/90	05/31/90	05/31/90	07/19/90
Date Received	: 07/20/90	07/20/90	07/20/90	07/20/90
Priority	: Rush	Rush	Rush	Rush
Parameter Collected by	: GEL	GEL	GEL	GEL

CADMIUM, TCLP		<0.5 ppm	<0.5 ppm	
CHROMIUM, TCLP	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
LEAD, TCLP			63.0 ppm	
TCLP EXTRACTION - SOLID	YES	YES	YES	YES



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

Molly F. Greene  
President

George C. Greene, P.E., Ph.D.  
Vice President  
SC Registration No. 9103

Laboratory Certifications:  
FL E37156/87224  
NC 233  
SC 10120  
VA C0151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211

Date: 06/27/90

Contact: MR. FRANCIS P. MOOD

Released by:

*JR. Hoffman*  
QA/QC Officer

cc/fc: NUCO/NUCO1

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	: SB1-A	SB1-B	SB2-A	SB-4
Lab ID	: 90060740	90060741	90060742	90060743
Sample Matrix	: SOLID	SOLID	SOLID	SOLID
Date Collected	: 05/31/90	05/31/90	05/31/90	05/31/90
Date Received	: 06/12/90	06/12/90	06/12/90	06/12/90
Priority	: Routine	Routine	Routine	Routine
Parameter Collected by	: GEL	GEL	GEL	GEL

ARSENIC	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
CADMIUM	<0.5 ppm	<0.5 ppm	<0.5 ppm	<0.5 ppm
CHROMIUM	<1.0 ppm	8.84 ppm	110 ppm	15.0 ppm
COPPER	<1.0 ppm	1.25 ppm	26.0 ppm	8.6 ppm
LEAD	<1.0 ppm	<1.0 ppm	18.0 ppm	4.7 ppm
NICKEL	<1.0 ppm	1.11 ppm	9.6 ppm	2.7 ppm
ZINC	<1.0 ppm	<1.0 ppm	130 ppm	18.0 ppm
ACID DIGESTION	YES	YES	YES	YES





# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

Tolly F. Greene

George C. Greene, P.E., Ph.D.  
Vice President  
Registration No. 9103

Laboratory Certifications:  
FL E37156/87224  
NC 233  
SC 10120  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211  
Contact: MR. FRANCIS P. MOOD

Date: 06/26/90

Released by:

*J.R. Hadden*  
QA/QC Officer

cc/fc: NUCO/NUCO1

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	: SB-5	SB-5	SB-6	SB-7
		SURFACE		(2 FEET)
Lab ID	: 90060744	90060745	90060746	90060747
Sample Matrix	: SOLID	SOLID	SOLID	SOLID
Date Collected	: 05/31/90	05/31/90	06/01/90	05/31/90
Date Received	: 06/12/90	06/12/90	06/12/90	06/12/90
Priority	: Routine	Routine	Routine	Routine
Parameter Collected by	: GEL	GEL	GEL	GEL
ARSENIC	<1.0 ppm	27.0 ppm	<1.0 ppm	<1.0 ppm
CADMIUM	<0.5 ppm	<0.5 ppm	<0.5 ppm	<0.5 ppm
CHROMIUM	11.0 ppm	380 ppm	8.2 ppm	3.2 ppm
COPPER	9.9 ppm	1600 ppm	6.5 ppm	1.1 ppm
LEAD	3.0 ppm	23.0 ppm	9.1 ppm	6.3 ppm
NICKEL	4.5 ppm	360 ppm	2.1 ppm	1.1 ppm
ZINC	11.0 ppm	43.0 ppm	64.0 ppm	33.0 ppm
ACID DIGESTION	YES	YES	YES	YES

# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

Jolly F. Greene  
President

George C. Greene, P.E., Ph.D.  
Vice President  
C Registration No. 9103

Laboratory Certifications:  
FL ES7156/87294  
NC 033  
SC 10120  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211

Date: 06/26/90

Contact: MR. FRANCIS P. MOOD

Released by:

*JR Heltzer*  
QA/QC Officer

cc/fc: NUCC/NUCC01

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	:	SB-10	SB-10 SURFACE	SB-11 DIL (3.5 FEET)	SB-12
Lab ID	:	90060752	90060753	90060754	90060755
Sample Matrix	:	SOLID	SOLID	SOLID	SOLID
Date Collected	:	05/31/90	05/31/90	05/31/90	05/31/90
Date Received	:	06/12/90	06/12/90	06/12/90	06/12/90
Priority	:	Routine	Routine	Routine	Routine
Parameter Collected by	:	GEL	GEL	GEL	GEL

TOTAL HYDROCARBONS - SOLID  
EVAPORATIVE LOSS @ 105 C

<10 ppm  
6 wt%

ARSENIC	10.0 ppm	<1.0 ppm	<1.0 ppm
CADMIUM	<0.5 ppm	<0.5 ppm	1.2 ppm
CHROMIUM	79.0 ppm	5.0 ppm	15.0 ppm
COPPER	280 ppm	13.0 ppm	7.3 ppm
LEAD	41.0 ppm	<1.0 ppm	86.0 ppm
NICKEL	110 ppm	4.6 ppm	4.3 ppm
ZINC	190 ppm	5.2 ppm	560 ppm
ACID DIGESTION	YES	YES	YES



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

Molly F. Greene  
President

George C. Greene, P.E., Ph.D.  
Vice President  
SC Registration No. 9103

Laboratory Certifications:  
FL E37156/87294  
NC 233  
SC 10120  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211  
Contact: MR. FRANCIS P. MOOD

Date: 06/26/90

Released by: *[Signature]*

QA/QC Officer

cc/fc: NUCO/NUCO1

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	:	SB-13	SB-14	SB-15	SB-16
Lab ID	:	90060756	90060757	90060758	90060759
Sample Matrix	:	SOLID	SOLID	SOLID	SOLID
Date Collected	:	05/31/90	06/01/90	06/01/90	06/01/90
Date Received	:	06/12/90	06/12/90	06/12/90	06/12/90
Priority	:	Routine	Routine	Routine	Routine
Parameter Collected by	:	GEL	GEL	GEL	GEL

TOTAL HYDROCARBONS - SOLID  
EVAPORATIVE LOSS @ 105 C

81200 ppm  
15 wt%

ARSENIC	16.0 ppm	3.1 ppm	27.0 ppm	<1.0 ppm
CADMIUM	5.5 ppm	<0.5 ppm	11.0 ppm	<0.5 ppm
CHROMIUM	230 ppm	120 ppm	280 ppm	2.5 ppm
COPPER	1100 ppm	300 ppm	1600 ppm	1.9 ppm
LEAD	34.0 ppm	23.0 ppm	47.0 ppm	6.4 ppm
NICKEL	220 ppm	71.0 ppm	380 ppm	2.2 ppm
ZINC	180 ppm	120 ppm	180 ppm	35.0 ppm
ACID DIGESTION	YES	YES	YES	YES

# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

ly F. Greene

rgo C. Greene, P.E., Ph.D.  
President  
Registration No. 9103

Laboratory Certifications:  
FL E37156/87294  
NC 233  
SC 10120  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.

P.O. BOX 11889

COLUMBIA, SC 29211

Date: 06/26/90

Contact: MR. FRANCIS P. MOOD

Released by:

*JR. H. H. H.*  
QA/QC Officer

cc/fc: NUCO/NUC01

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	SB-17	SB-18	SB-19	SB-19
	BACKGROUND			SURFACE
Lab ID	90060760	90060761	90060762	90060763
Sample Matrix	SOLID	SOLID	SOLID	SOLID
Date Collected	06/01/90	06/01/90	05/31/90	05/31/90
Date Received	06/12/90	06/12/90	06/12/90	06/12/90
Priority	Routine	Routine	Routine	Routine
Parameter Collected by	GEL	GEL	GEL	GEL

ARSENIC	1.6 ppm	3.1 ppm	<1.0 ppm	8.6 ppm
CADMIUM	<0.5 ppm	<0.5 ppm	32.0 ppm	200 ppm
CHROMIUM	5.8 ppm	13.0 ppm	35.0 ppm	290 ppm
COPPER	<1.0 ppm	5.2 ppm	95.0 ppm	710 ppm
LEAD	<1.0 ppm	<1.0 ppm	2000 ppm	14000 ppm
NICKEL	3.0 ppm	6.1 ppm	8.9 ppm	61.0 ppm
ZINC	5.8 ppm	15.0 ppm	12000 ppm	60000 ppm
ACID DIGESTION	YES	YES	YES	YES



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

Molly E. Greene  
President

George C. Greene, P.E., Ph.D.  
Vice President  
SC Registration No. 9103

## Laboratory Certifications:

FL	E37156/87224
NC	233
SC	10122
VA	00151
NACIP	Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211

Date: 06/26/90

Contact: MR. FRANCIS F. MOOD

Released by:

*JR H. H. H.*  
QA/QC Officer

cc/fc: NUCO/NUC01

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	:	SB-20	SB-20
			SURFACE
Lab ID	:	90060764	90060765
Sample Matrix	:	SOLID	SOLID
Date Collected	:	05/31/90	05/31/90
Date Received	:	06/12/90	06/12/90
Priority	:	Routine	Routine
Parameter Collected by	:	GEL	GEL

ARSENIC	<1.0 ppm	10.0 ppm
CADMIUM	6.0 ppm	190 ppm
CHROMIUM	10.0 ppm	220 ppm
COPPER	18.0 ppm	540 ppm
LEAD	520 ppm	17000 ppm
NICKEL	1.7 ppm	42.0 ppm
ZINC	3000 ppm	4000 ppm
ACID DIGESTION	YES	YES

# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services



W. F. Greene  
President

George C. Greene, P.E., Ph.D.  
Vice President  
SC Registration No. 9103

Laboratory Certifications:  
FL E87156/87294  
NC 233  
SC 10120  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211

Contact: MR. FRANCIS P. MOOD

Date: 07/25/90

Released by:

*Robert J. Williams*  
QA/QC Officer

cc/fc: NUCO/NUCO1

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	:	SB 19 @ 10'	SB 20 @ 7'	SB 20-75' WEED	SB 20-75' SOIL
Lab ID	:	90071385	90071386	90071387	90071388
Sample Matrix	:	SOLID	SOLID	SOLID	SOLID
Date Collected	:	07/19/90	07/19/90	07/19/90	07/19/90
Date Received	:	07/20/90	07/20/90	07/20/90	07/20/90
Priority	:	Rush	Rush	Rush	Rush
Parameter Collected by	:	GEL	GEL	GEL	GEL

ARSENIC	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
CADMIUM	<0.5 ppm	<0.5 ppm	0.53 ppm	1.3 ppm
CHROMIUM	1.4 ppm	<1.0 ppm	<1.0 ppm	5.4 ppm
COFFER	<1.0 ppm	<1.0 ppm	1.2 ppm	5.8 ppm
LEAD	2.3 ppm	3.1 ppm	7.5 ppm	100 ppm
NICKEL	<1.0 ppm	<1.0 ppm	<1.0 ppm	1.2 ppm
ZINC	9.6 ppm	2.3 ppm	240 ppm	400 ppm
ACID DIGESTION	YES	YES	YES	YES



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

George C. Greene

George C. Greene, P.E., Ph.D.  
President  
Registration No. 9103

## Laboratory Certifications:

FL E87156/87294  
NC 233  
SC 10120  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211  
Contact: MR. FRANCIS P. MOOD

Date: 07/25/90

Released by:

QA/QC Officer

cc/fc: NUCO/NUC01

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	:	SB 20-15'	SB 20-15'	SB 20-25'	SB 20-25'
		SOYBEAN	SOIL	SOYBEAN	SOIL
Lab ID	:	90071389	90071390	90071391	90071392
Sample Matrix	:	SOLID	SOLID	SOLID	SOLID
Date Collected	:	07/19/90	07/19/90	07/19/90	07/19/90
Date Received	:	07/20/90	07/20/90	07/20/90	07/20/90
Priority	:	Rush	Rush	Rush	Rush
Parameter Collected by	:	GEL	GEL	GEL	GEL

ARSENIC	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
CADMIUM	<0.5 ppm	0.5 ppm	<0.5 ppm	<0.5 ppm
CHROMIUM	<1.0 ppm	3.4 ppm	<1.0 ppm	1.8 ppm
COPPER	1.5 ppm	2.9 ppm	1.6 ppm	2.0 ppm
LEAD	4.5 ppm	43.0 ppm	7.4 ppm	33.0 ppm
NICKEL	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
ZINC	65.0 ppm	190 ppm	120 ppm	150 ppm
ACID DIGESTION	YES	YES	YES	YES



# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

F. Greene  
President

George C. Greene, P.E., Ph.D.  
Vice President  
C Registration No. 9103

Laboratory Certifications:  
FL E37156/87294  
NC 233  
SC 10120  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211  
Contact: MR. FRANCIS P. MOOD

Date: 07/25/90  
Released by: *Robert J. Pulla*  
QA/QC Officer

cc/fc: NUCO/NUC01 Project Manager: Carey J. Bocklet Page No.: 1

Sample ID	: SB-21	SB-22	SB-23	SB-24
Lab ID	: 90071393	90071394	90071395	90071396
Sample Matrix	: SOLID	SOLID	SOLID	SOLID
Date Collected	: 07/19/90	07/19/90	07/19/90	07/19/90
Date Received	: 07/20/90	07/20/90	07/20/90	07/20/90
Priority	: Rush	Rush	Rush	Rush
Parameter Collected by	: GEL	GEL	GEL	GEL

TOTAL HYDROCARBONS - SOLID	11 ppm	<10 ppm	<10 ppm	10 ppm
EVAPORATIVE LOSS @ 105 C	17 wt%	19 wt%	5 wt%	10 wt%
ARSENIC	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
CADMIUM	<0.5 ppm	<0.5 ppm	<0.5 ppm	<0.5 ppm
CHROMIUM	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
COPPER	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
LEAD	2.8 ppm	2.0 ppm	2.0 ppm	2.2 ppm
NICKEL	<1.0 ppm	<1.0 ppm	<1.0 ppm	<1.0 ppm
ZINC	11.0 ppm	2.5 ppm	<1.0 ppm	<1.0 ppm
ACID DIGESTION	YES	YES	YES	YES





# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

Wally F. Greene  
President

George C. Greene, P.E., Ph.D.  
Vice President  
SC Registration No. 9103

Laboratory Certifications:  
FL ES7156/87294  
NC 233  
SC 10120  
VA 00151  
NACIP Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211

Contact: MR. FRANCIS P. MOOD

Released by:

Date: 07/25/90

QA/QC Officer

cc/fc: NUCO/NUCO1

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	:	SB-25	SB-26
Lab ID	:	90071397	90071398
Sample Matrix	:	SOLID	SOLID
Date Collected	:	07/19/90	07/19/90
Date Received	:	07/20/90	07/20/90
Priority	:	Rush	Rush
Parameter Collected by	:	GEL	GEL

TOTAL HYDROCARBONS - SOLID	<10 ppm	463 ppm
EVAPORATIVE LOSS @ 105 C	11 wt%	14 wt%
ARSENIC	<1.0 ppm	<1.0 ppm
CADMIUM	<0.5 ppm	3.4 ppm
CHROMIUM	2.8 ppm	80.0 ppm
COPPER	1.0 ppm	29.0 ppm
LEAD	3.7 ppm	120 ppm
NICKEL	<1.0 ppm	6.7 ppm
ZINC	4.9 ppm	820 ppm
ACID DIGESTION	YES	YES

# GENERAL ENGINEERING LABORATORIES

Environmental Engineering and Analytical Services

Jolly B. Greene  
President

J. B. Greene, P.E., Ph.D.  
Vice President  
Registration No. 9123

Laboratory Certifications:  
IL 68715487204  
NC 212  
SC 10127  
VA 60151  
NAC12 Approved

## CERTIFICATE OF ANALYSIS

Client: SINKLER & BOYD, P.A.  
P.O. BOX 11889  
COLUMBIA, SC 29211

Contact: MR. FRANCIS P. MOOD

Released by:

Date: 07/31/90

QA/QC Officer

cc/fc: NUCO/NUC01

Project Manager: Carey J. Bocklet

Page No.: 1

Sample ID	:	FIELD	FIELD
		1 A-D	1 A-D
		SOYBEAN	SOIL
Lab ID	:	90072032	90072033
Sample Matrix	:	SOLID	SOLID
Date Collected	:	07/30/90	07/30/90
Date Received	:	07/30/90	07/30/90
Priority	:	Urgent	Urgent
Parameter Collected by	:	GEL	GEL

ARSENIC	<1 ppm	<1 ppm
CADMIUM	<0.5 ppm	<0.5 ppm
CHROMIUM	2.3 ppm	3.7 ppm
COPPER	3.1 ppm	1.4 ppm
LEAD	4.7 ppm	5.7 ppm
NICKEL	<1 ppm	1.1 ppm
ZINC	26 ppm	13 ppm
ACID DIGESTION	YES	YES
SAMPLE PREP - COMPOSITING	YES	YES

REFERENCE  
8

nucor steel

A Division of NUCOR Corporation

Post Office Box 525 Darlington, South Carolina 29532 Telephone 803/393-5841

RECEIVED

August 18, 1993

AUG 19 1993

Mr. Jonathan McInnis, Environmental Quality Manager  
Site Screening Section  
Bureau of Solid & Hazardous Waste Management  
Department of Health and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201

S.C. Dept. of Health & Environmental  
Control-Bureau of Solid & Hazardous  
Waste Management

Re: Request for Information  
Nucor Steel SCD 044 940 369

Dear Mr. McInnis:

In response to your request for information, dated July 16, 1993,  
we submit the following.

Disposal History/Location

Baghouse Dust - Attached is a listing of the amount and location of disposal of baghouse dust for the years 1984 through 1992. Our extremely limited records for dust generated prior to 1984 are not adequate enough for us to determine where the dust was disposed of, or in what quantities, other than the fact that dust was hauled to the Darlington County landfill. No dust was ever taken to Southeastern Chemical and Solvents Company. The only items ever sent there by Nucor Steel were spent Varsol and waste oils. As you know, we have entered into a RCRA consent order with DHEC to address problems with respect to baghouse contamination associated with an accumulation area. We are in the process of developing and implementing a closure plan for this area to address the contamination.

"Sludge" - Our annual production of grease residue (the "sludge" to which you refer) we have previously estimated at approximately 300 cubic yards per year, the amount we are permitted to manage in our on site landfill pursuant to our DHEC permit. To the best of our knowledge, this material has not been disposed of in any offsite location. Please note that in addition to the permit you mentioned, we were issued a new landfill permit (CWP-041, Cell 1) by SCDHEC on March 15, 1993.

Site Information

Cooling Water "Ponds" - As you may know, our cooling water source typically has been on-site groundwater wells screened at a depth in

SCDHEC Request for Information  
Nucor Steel SCD 044 940 369  
August 18, 1993

excess of 165 feet. The quality of water produced from these wells has consistently been very good. Our cooling water is generally managed in concrete, inground structures, sometimes referred to as "ponds" or "basins.". We are enclosing a list of our ponds for your information.

For contact water, the overflow from the concrete basin had been just to our facility impoundment area in the past. Our current operating practices have eliminated the potential for overflow from the contact cooling water basin to our facility impoundment area. Instead, overflows are now routed to a second concrete basin where waters are stored for reuse and recycling in our mill processes.

Prior to 1990, the non-contact cooling water from the #2 Mill cooling bed was allowed to flow to Lucas Creek. This was the only flow into Lucas Creek. In 1990, this flow was permanently redirected, which eliminated the flow of this uncontaminated water to Lucas Creek. Until recently, the non-contact cooling water overflow from the north cooling pond did flow to the facility impoundment. However, this flow has been redirected in the same manner as our contact water noted above.

Regarding your inquiry with respect to our requests in the September 25, 1990 letter from Walter Postlethwait to Howard Mosley, we requested, but never received, the desired approval from DHEC to institute the procedures set out in the letter and they were never implemented as a result. Our normal procedure for removing grease residue continues to be dipping out the residue without emptying the basin. Generally, we allow the water to evaporate before removing the grease residue or "sludge." The grease residue is then managed in accordance with our DHEC landfill permit.

Ground Water Supply Wells - We are enclosing a map which shows the location of our two active ground water supply wells. Also included is the well log for the newest of these two wells. This is the only log we are able to locate. As you will note on this log, the annular space of the uppermost 100 feet of this well has been sealed with neat cement grout. This grout would prevent infiltration of surface or shallow ground water contaminants, if present, from reaching significant producing aquifers.

The water from these wells provides process water for our manufacturing operations. Prior to July, 1990, the wells did provide drinking water to the mill. We shifted to using water from Darlington County primarily at the urging of SCDHEC. We are not able to locate in our records any analytical data related to these wells.

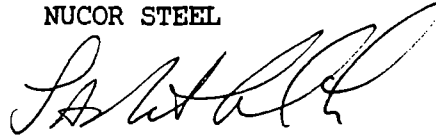
Air Data - We do not have any available estimates for fugitive emissions. After making some initial efforts, we have found this endeavor sufficiently complex that we would need to retain a consultant

SCDHEC Request for Information  
Nucor Steel SCD 044 940 369  
August 18, 1993

to assist us in developing these estimates. We can do this if you indicate it is a necessity.

Sincerely,

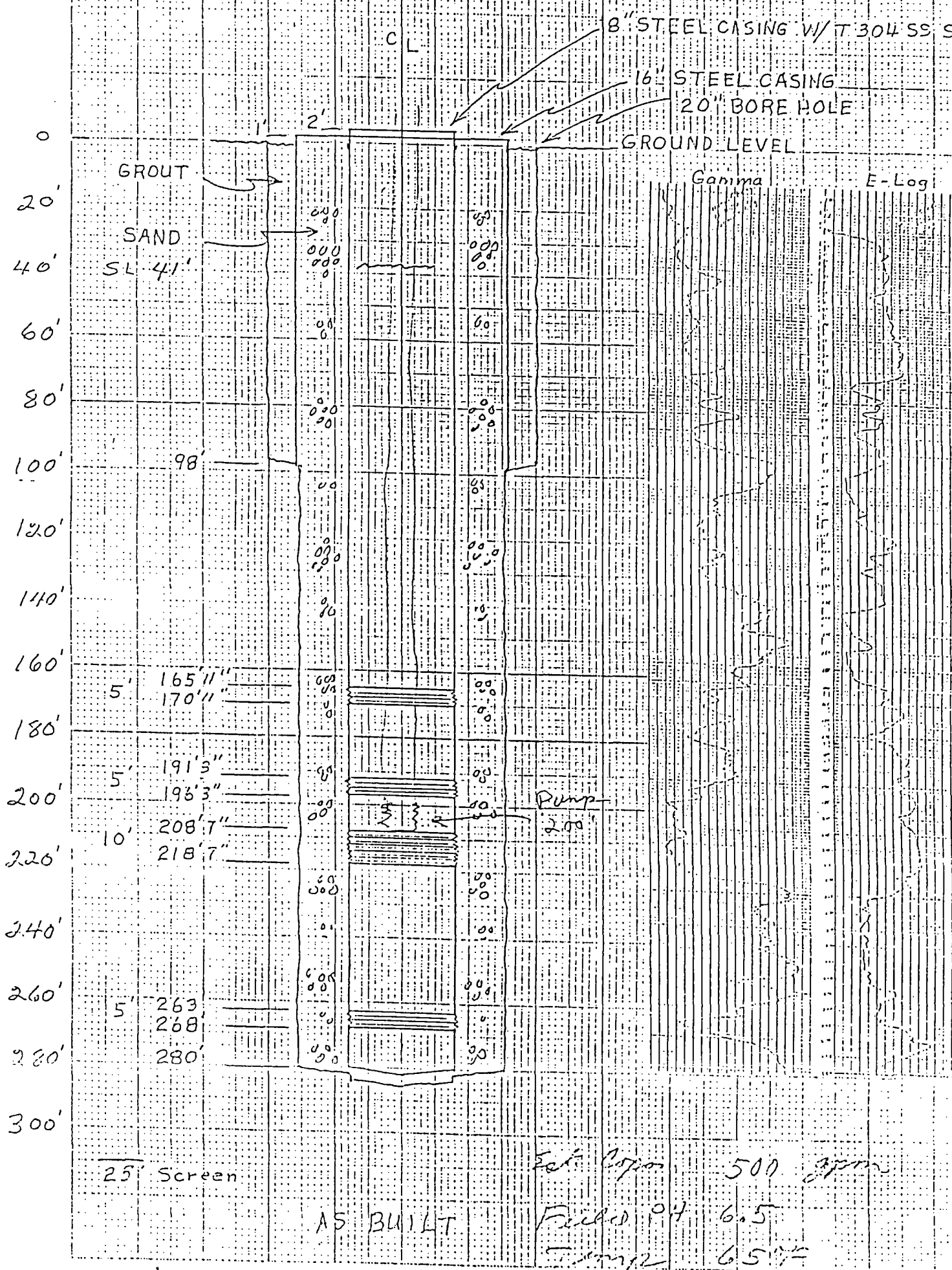
NUCOR STEEL

A handwritten signature in black ink, appearing to read 'J. A. Rutkowski', written in a cursive style.

J. A. Rutkowski  
Vice President &  
General Manager

enclosures





Nucor Steel-South Carolina  
Disposal of Baghouse Dust  
1984 through 1992

Year	Disposed With	Location	Pounds of Dust Manifested	
1984	New Jersey Zinc	PA	2,274,400	
	Laidlaw	SC	5,425,400	
	Stoller Chemical	SC	2,851,800	
	Total Dust			10,551,600
1985	New Jersey Zinc	PA	1,692,800	
	Laidlaw	SC	990,000	
	Stoller Chemical	SC	6,567,800	
	Total Dust			9,250,600
1986	New Jersey Zinc	PA	426,000	
	Laidlaw	SC	470,260	
	Stoller Chemical	SC	7,525,000	
	Total Dust			8,421,260
1987	New Jersey Zinc	PA	1,062,560	
	Laidlaw	SC	3,094,460	
	Stoller Chemical	SC	4,525,540	
	St. Joseph Technical Center	PA	220,940	
	Total Dust			8,903,500
1988	New Jersey Zinc	PA	653,900	
	Laidlaw	SC	549,380	
	Stoller Chemical	SC	4,924,880	
	Royster	VA	5,829,940	
	Total Dust			11,958,100
1989	New Jersey Zinc	PA	216,860	
	Stoller Chemical	SC	5,964,420	
	Royster	VA	5,461,960	
	Total Dust			11,643,240
1990	Stoller Chemical	SC	8,400,320	
	Royster	VA	2,265,860	
	Total Dust			10,666,180
1991	Stoller Chemical	SC	8,639,420	
	Total Dust			8,639,420
1992	Stoller Chemical	SC	920,420	
	Horsehead Recovery	PA	5,996,960	
	Horsehead Recovery	TN	3,917,900	
	Total Dust			10,835,280



March 15, 1993

Mar. Walter E. Postlethwait  
Nucor Steel  
P.O. Box 525  
Darlington, SC 29532

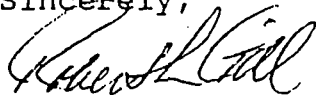
Re: Nucor Steel Construction Waste Permit, CWP-041, Cell I  
Darlington County

Dear Mr. Postlethwait

Enclosed is a new Construction Waste Permit for the Nucor Steel Construction Waste Landfill, CWP-041, Cell I. Many changes are anticipated in State landfill requirements and at such time as the Department accomplishes the necessary regulatory changes, the Permittee will be required to comply with any applicable portions of such revisions.

If you should have any questions concerning the permit, please contact April Grunsky at 734-5176.

Sincerely,



Robert L. Gill, P.E., Manager  
Facility Engineering Section  
Division of Solid Waste Management  
Bureau of Solid and Hazardous Waste Management

RLG/AG/pej

cc: Robert Eaddy, Pee Dee Environmental, EQC  
Howard Mosley, BSHWM  
April Grunsky, BSHWM

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF SOLID AND HAZARDOUS WASTE MANAGEMENT  
CONSTRUCTION WASTE PERMIT - CWP-041, Cell I

Date of Issue: March 15, 1993      Effective Date: April 14, 1993

Permission is hereby granted to:

Name of Facility:

Nucor Steel

Address:

P.O. Box 525

Darlington, SC 29532

Supervisor:

Walter E. Postlethwait

Phone:

(803) 393-5841

for the operation of a construction waste landfill located on plant site property.

This permit is issued pursuant to Section 48-1-10 et seq. and 44-1-140 (11) of the 1976 South Carolina Code of Laws, as amended, and South Carolina Rule(s) and Regulations(s) R.61-70, including the Permitting Protocol approved by the SC DHEC Board on March 11, 1993. The authority granted hereunder is subject to the requirements of the aforementioned laws and regulations and the attached conditions.

William W. Culler, P.E., Director  
Division of Solid Waste Management  
Bureau of Solid and Hazardous Waste  
Management

This permit is non-transferable and is the property of the Bureau of Solid and Hazardous Waste Management and must be surrendered on demand.

If the permit is appealed, the effective date of the permit will be revised as necessary. Any request for review or appeal of this permit must be served in person or by mail within fifteen (15) days of the date of issuance, on:

The Board of Health and Environmental Control  
Office of the Commissioner  
2600 Bull Street  
Columbia, South Carolina 29201  
(803) 734-4880

Nucor Steel Landfill  
CWP-041, Cell I

A. General IWP Permit Conditions

1. The Permittee shall adhere to the approved design plans and specifications and operational plan, dated March 5, 1993, unless permit conditions state otherwise.
2. This permit is limited to the disposal of the following waste(s) in Cell I only: grease residue, refractories, untreated wood, concrete rubble, clean excavation dirt, crushed stone and untreated wood ash.
3. It is the Permittee's responsibility to ensure that no other waste is disposed at this site. If the Permittee determines the need to dispose of any waste other than that listed in permit condition two (2), prior written approval must be obtained from the Bureau of Solid and Hazardous Waste Management. Each request shall be made in writing to the attention of: Manager, Waste Assessment Section, cc: Director, Solid Waste Management.
4. All waste shall be covered every ninety (90) days with a minimum of six (6) inches of clean soil.
5. Should a disposal area become inundated or have measurable water contained, steps must be taken to remove this water before continuing disposal of waste.
6. This permit will be subject to an environmental compliance review at least once every 5 years. Upon notification for review by the Department, the permittee will have sixty (60) days to submit the following information:
  1. Remaining operating life of site
  2. Type(s) of waste(s) disposed into site
  3. Quantity of waste(s) disposed into site
  4. Other information/data that might be in conflict with conditions of the permit.

B. Ground Water Permit Conditions

None

C. Closure/Post Closure Care Permit Conditions

1. The Permittee will be responsible for submitting a detailed closure/post-closure plan one (1) year prior to the landfill reaching permitted capacity. Post closure care shall be conducted for a period of thirty (30) years unless a variance is applied for and obtained by the Permittee.

D. Special Permit Condition

1. Analytical test requirements for the waste streams listed in permit condition two (2) are the following:
  - a) Eight (8) Drinking Water Metals plus Nickel per Toxicity Characteristic Leaching Procedure (SW846-1311).
  - b) Total Petroleum Hydrocarbon (SW846-3550).
  - c) Total Organic Halogens (SW846-9020 or 8010).

The testing frequency should be done June 1993, December 1993, December 1994, and then once every two (2) years thereafter. This aforementioned frequency of testing is based upon satisfactory (non-hazardous waste status) results of analytical testing data correlated with the applicability of R.61-79-262.11 to the waste streams listed in permit condition two (2).

2. Once the concrete plant has been removed, Nucor Steel must propose more security for the remaining cells. The areas of concern will be the four (4) foot berm and the stretch from the gate to the woods.

NPC-FORM 14

1 U.S. GALLON = .1337 CU. FT.

1. MILL No. 1 COOLING POND DIRTY WATER POND (DWG. 56-A)

74' x 150' x 6'-4 1/2" AVG. DEPTH = 70,763 CU. FT.

$\frac{70,763}{.1337} = 529,267 \text{ GAL.}$

2. MILL No. 1 SLUDGE TRAP (DWG. 56-26)

10' x 128' x 7' AVG. DEPTH = 8,960 CU. FT.

$\frac{8,960}{.1337} = 67,016 \text{ GAL.}$

3. MILL No. 1 COOLING POND CLEAN WATER POND (DWG. 56-46)

74'-6" x 150' x 6'-4 1/2" AVG. DEPTH = 71,241 CU. FT.

$\frac{71,241}{.1337} = 532,842 \text{ GAL.}$

TOTAL FOR 1, 2 & 3 = 1,129,125 GAL.

4. MILL No. 2 COOLING POND DIRTY WATER (DWG. 56-133)

60' x 120' x 6'-6" AVG. DEPTH = 46,800 CU. FT.

$\frac{46,800}{.1337} = 350,037 \text{ GAL.}$

5. MILL No. 2 SLUDGE TRAP (DWG. 56-133)

10' x 120' x 5'-0" DEPTH = 6,000 CU. FT.

$\frac{6,000}{.1337} = 44,877 \text{ GAL.}$

6. MILL No. 2 COOLING POND CLEAN WATER (DWG. 52B-D-136)

60' x 77'-4" x 9'-6" AVG. DEPTH = 44,080 GAL.

$\frac{44,080}{.1337} = 329,693 \text{ GAL.}$

SK-589-1

1 U.S. GALLON = .1337 CU. FT.

7. MILL No. 1 NORTH COOLING POND (DWG. 56-D-279)

58'-0" x 178'-0" x 7'-2" AVG. DEPTH = 739,89 CU. FT.

739,89 = 553,396 GAL.

.1337

8. MILL No. 2 CLEAN WATER COOLING POND (DWG. 56-D-421)

60' x 129' x 8'-5<sup>3</sup>/<sub>8</sub>" AVG. DEPTH = 65,369 CU. FT.

65,369 = 488,923 GAL.

.1337

NOTE: ALL POND CONDITIONS ARE WITH  
WATER AT TOP OF WALL ELEVATION  
(MIN. CAPACITY).

MILL No. 1 ALL PONDS 1,682,521 GAL. TOTAL

MILL No. 2 ALL PONDS 1,213,530 GAL. TOTAL

9. Common Holding Pond (DWG. 56-D-409)

60' x 169' depth 8' to 0'

66,850 ft<sup>3</sup> = 500,000 gal

.1337

5K-589-2

REFERENCE

9

**APPLIED TECHNOLOGY AND MANAGEMENT, INC.**

3850 FERNANDINA ROAD, SUITE 119  
COLUMBIA, SOUTH CAROLINA 29210  
TELEPHONE (803) 772-8420 • FAX (803) 731-0862

14 January 1993

Mr. Carl W. Richardson, P.E.  
Environmental Engineer  
Bureau of Water Pollution Control  
SODHEC  
2600 Bull Street  
Columbia, SC 29201

RE: Closure Activities  
Sludge Holding Pond  
Nucor Steel Facility  
Darlington, South Carolina

Dear Mr. Richardson:

As a result of the expansion (new melt shop) project at the Nucor Steel plant in Darlington SC, it is necessary to cease use of an existing concrete holding pond. The holding pond is relatively new, installed in 1988, and is used on a twice yearly basis as part of plant maintenance of process water and recirculation water ponds. Dirt, grit, mill scale and grease material that accumulates in "dirty water ponds" is washed and flushed through a 24 inch diameter RCP which is gravity drained to the holding pond. The cleaning and flushing process occurs on a twice yearly basis as part of the plant shut-down maintenance.

The material that is flushed to the 500,000 gallon pond is allowed to settle. As the mixture exhibits excellent settling characteristics, the clarified water is then recirculated by pumping back to the clean water pond. According to Nucor records, no reportable chemical spills or overflow of the holding pond has occurred. After the clarified water is recirculated back to the CWP the remaining sludge waste material is allowed to dry for a suitable period and is then transferred to the adjacent (permitted) Nucor landfill. Analytical results for sludge, pond water and spray water have been submitted to and evaluated by DHEC -

Solid and Hazardous Waste over the operational life of the structure. As a result of the testing performed, DHEC has verified that the material(s) are non-hazardous and has permitted the ultimate disposal of the material in the on-site landfill.

Because of the pressing construction schedule and the considerable financial costs of demolishing the pond in place, Nucor Steel is forced to proceed with the in-place closure. In accordance with strict closure protocol, Nucor is cleaning, scraping, dewatering and decommissioning the pond. Currently, Nucor is in the initial process of steam cleaning the holding pond. In accordance with DHEC Solid Waste permits the sludge material will be landfilled. Liquid accumulated from cleaning will be allowed to clarify and will be pumped (recycled) back to the clean water pond.

(nucor3.let)

page 1

Finally, the cleaned holding pond unit will be inspected, documented and allowed to be backfilled with clean soil. The corners of the unit will be marked with permanent survey monuments.

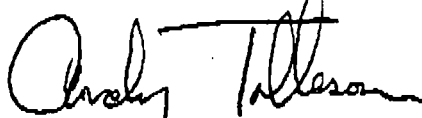
At the completion of the project, an engineering report will be issued to DHEC. The report will include analytical reports, closure and cleaning protocols, water balance estimates, routing schematics for drain lines to and from the pond, photographs, and as-built drawings for the new replacement holding pond.

For your information, I contacted the Florence District EQC office Thursday, 14 January 1993. I was unable to talk with the DHEC engineer (Mr. Gary Stowe), but left a detailed message inviting him to observe the closure operations at the plant. I am enclosing both a copy of the Concrete Holding Pond Cleaning and Decommissioning Procedure plan that Nucor Steel is following and a DRAFT layout plan of the Nucor facility with the holding pond clearly shown. I have been informed that the stem cleaning operations will continue through the middle of next week and backfilling may begin a few days later.

If you have any questions or comments please do not hesitate to contact me.

Sincerely,

APPLIED TECHNOLOGY AND MANAGEMENT, INC.



Andrew R. Tolleson, P.E.  
Senior Associate

encl: Concrete Holding Pond Cleaning & Decommissioning Procedure  
DRAFT plan layout

cc: Mr. Bruce Warnix, P.E. - Nucor Steel



CONCRETE HOLDING POND  
CLEANING AND DECOMMISSIONING PROCEDURE

---

1. CLEANING PROCEDURE

- (a) Contact DHEC EQC district inspector and inform of decommissioning plans and invite to observe operations.
- (b) Dewater pond by pumping/recirculating back to either CWP or DWP. Do not discharge water(s) to landfill or lower elevation wetland areas. This may constitute an illegal discharge and subject Nucor Steel to fines or penalties.
- (c) Remove sludge & place in landfill.
- (d) Steam clean inside of pond.
- (e) Pump rinsate waters from steam cleaning operations to existing cooling ponds. Rinse waters that cannot be captured by return pump intake should be stabilized to soil like consistency. Stabilize excess waters in pond by thoroughly mixing roll (mill) scale with rinsate water. Use front end loader or equivalent to assist in mixing. After roll scale has become saturated, place in Nucor Steel landfill.
- (f) Stabilized mixture of roll scale, sludge, and rinse waters should be sufficiently dewatered. This will be evidenced by the stabilized mixture exhibiting "soil like" as opposed to sludge or "fluid-like" appearance and properties. The mixture should not readily leach waters and fluids.

\*NOTE: Before hauling saturated roll scale to landfill, have front end loader scoop or drag a low place on the landfill. Cover the depression with 10 mil polyethelene. Construct an 12" berm around periphery and use with hay bails (as required) to eliminate stormwater runoff.

2. DOCUMENTING PROCEDURE

- (a) Take photographs of pond and of landfill before cleaning procedure begins.
- (b) Take photographs of each step of cleaning procedure.
- (c) Take photographs of filling procedure.
- (d) Take photographs of stockpile area with 10 - mil polyethelene.
- (e) Take photographs of completed work.

3. FILLING PROCEDURE

- (a) Fill interior of pond with unspoiled earth in 12" lifts.
- (b) Run compacting roller over each layer, and densify to 95% standard proctor (ASTM D-693).
- (c) Fill to grade.
- (d) Place concrete monument markers at each corner of pond in order that pond location can be identified in the future.

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
Water Surveillance and Laboratory Analysis Division  
Analysis Request Form

Date Collected 6/7/76  
Mo Day Yr

Collected By Ronnie L. Catlett

Laboratory Sample No. SA060920873

Time Collected 10:30 a.m.

SAMPLING POINT:

Nucor Steel Corp.

Baghouse Dust

Darlington County

MAIL REPORT TO:

Name James R. Ullery

Address Solid Waste Division

COMMENTS:

TESTS REQUESTED (PLEASE LIST):

<u>Cadmium</u>	<u>1,600 mg/kg</u>	<u>Mercury</u>	<u>1.02 mg/kg</u>
<u>Chromium</u>	<u>760 mg/kg</u>	<u>Nickel</u>	<u>170 mg/kg</u>
<u>Copper</u>	<u>2,000 mg/kg</u>	<u>Zinc</u>	<u>240,000 mg/kg</u>
<u>Iron</u>	<u>83,500 mg/kg</u>		
<u>Lead</u>	<u>32,500 mg/kg</u>		
<u>Magnesium</u>	<u>13,100 mg/kg</u>		
<u>Manganese</u>	<u>13,000 mg/kg</u>		

REPORTED BY JBD

DATE 8/11/76

ASD CENTRAL LAB

WS&LAD:27

REFERENCE 10



# SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

## AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Pollution Control Act of South Carolina (S.C. Code 63-195 et seq, as amended) and with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq; the "Act"),

Mucor Steel

is authorized to discharge from a facility located at

Darlington County, South Carolina

to receiving waters named

Lucas Branch

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts, I, II, and III hereof.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

Signed

**DRAFT**

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from outfall(s) serial number(s) 001

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirements	
	Concentration (mg/l)			Other Units (Specify)		Measurement Frequency	Sample Type
	Monthly Avg	Weekly Avg	Daily Max	Monthly Geometric Mean*	Daily Max		
Flow-m <sup>3</sup> /Day (MGD)	-	-	-	-	-	1/month	Flow Indicator
BOD <sub>5</sub>	30 mg/l	-	60 mg/l	-	-	1/month	24 Hr. Composite
TSS	30 mg/l	-	60 mg/l	-	-	1/month	24 Hr. Composite
Fecal Coliform	-	-	-	200/100 ml	400/100 ml	1/month	Grab

DRM

The pH shall not be less than 6.0 standard units nor greater 9.0 than standard units and shall be monitored once per month by grab.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): after treatment but prior to mixing with the receiving stream.

\*For purposes of calculating the geometric mean, a value of 1/100 ml shall be assigned to each determination which yields a value less than 1/100 ml. The monthly geometric mean limitation is not applicable if only one sample is taken during the month.

## 1. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

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## C. MONITORING AND REPORTING

1. *Representative Sampling*

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. *Reporting*

Monitoring results obtained during the previous months shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. The first report is due on . Duplicate signed copies of these, and all other reports required herein shall be submitted to the state at the following address:

South Carolina Department of Health and Environmental Control  
ATTN: NPDES Permits Section  
2600 Bull Street  
Columbia, S.C. 29201

3. *Definitions*

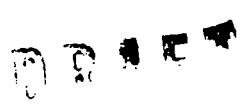
- a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.
- b. The "daily maximum" discharge means the total discharge by weight during any calendar day.

4. *Test Procedures*

Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304(g) of the Act, under which such procedures may be required.

5. *Recording of Results*

For each measurement or sample taken pursuant to the requirements of this permit the permittee shall record the following information:

- a. The exact place, date, and time of sampling;
  - b. The dates the analyses were performed;
  - c. The person(s) who performed the analyses;
- 

- d. The analytical techniques or methods used; and
- e. The results of all required analyses.

6. *Additional Monitoring by Permittee*

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods are specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

7. *Records Retention*

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Department of Health and Environmental Control.

**DRAFT**

## A. MANAGEMENT REQUIREMENTS

1. *Change in Discharge*

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants must be reported by submission of a new NPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the permit issuing authority of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. *Noncompliance Notification*

If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permittee shall provide the Department of Health and Environmental Control with the following information, in writing, within five (5) days of becoming aware of such condition:

- a. A description of the discharge and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. *Facilities Operation*

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee

4. *Adverse Impact***DRAFT**

The permittee shall take all reasonable steps to minimize any adverse impact to navigable waters resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. *Bypassing*

Any diversion from or bypass of facilities necessary to maintain compliance with the terms and conditions of this permit is prohibited, except (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the effluent limitations and prohibitions of this permit. The permittee shall promptly notify the Department of Health and Environmental Control in writing of each such diversion or bypass.



## PART II

Page 7 of 9  
Permit No. SC0035238

### 6. *Removed Substances*

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

### 7. *Power Failures*

In order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

- a. In accordance with the Schedule of Compliance contained in Part I, provide an alternative power source sufficient to operate the wastewater control facilities;

or, if such alternative power source is not in existence, and no date for its implementation appears in Part I,

- b. Halt, reduce or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

## B. RESPONSIBILITIES

DRAFT

### 1. *Right of Entry*

The permittee shall allow the Commissioner of the Department of Health and Environmental Control, the Regional Administrator, and/or their authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any discharge of pollutants.

### 2. *Transfer of Ownership or Control*

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Department of Health and Environmental Control.

### 3. *Availability of Reports*

Except for data determined to be confidential under Section 308 of the Act, all reports prepared in accordance with the terms of this permit shall be available for public

inspection at the offices of the Department of Health and Environmental Control and the Regional Administrator. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act.

4. *Permit Modification*

After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any terms or conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
- c. A change in any condition that required either a temporary or permanent reduction or elimination of the authorized discharge.

5. *Toxic Pollutants*

Notwithstanding Part II, B-4 above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

6. *Civil and Criminal Liability*

Except as provided in permit conditions on "bypassing" (Part II, A-5) and "Power Failures" (Part II, A-7), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. *Oil and Hazardous Substance Liability*

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

8. *State Laws*

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties established pursuant to any applicable State law of regulation under authority preserved by Section 510 of the Act.

## PART II

Page 9 of 9  
Permit No. SC0035238

### 9. *Property Rights*

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

### 10. *Severability*

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

## PART III

### OTHER REQUIREMENTS

20 8 14 11

REFERENCE 12

STATE		COUNTY		RIVER		RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS													
5.C.1		Darlington		March 93															
TIME (local) OF OBSERVATION		TEMP.	PRECIPITATION	STANDARD TIME IN USE															
		1700	1700																
TYPE OF RIVER GAGE		ELEVATION OF RIVER GAGE ZERO	FLOOD STAGE	NORMAL POOL STAGE															
DATE	TEMPERATURE F.		AT OBSN.	PRECIPITATION		WEATHER (Calendar Day)										RIVER STAGE		REMARKS (Special observations, etc.,)	
	24 HRS. ENDING AT OBSERVATION	MAX.		MIN.	24-HR AMOUNTS	At Obs.	Mark 'X' for all types occurring each day.										GAGE READING AT		TENDENCY
1	58	26	56																
2	61	39	56																
3	56	47	53																
4	66	52	58																
5	58	46	49																
6	60	33	56															at 6:00	
7	66	32	64															at 6:00	
8	71	42	67																
9	67	40	65																
10	81	58	78																
11	78	48	56																
12	56	36	46																
13	60	35	35															(Strong Winds-on 13th)	
14	38	25	36															(Ch'd rain at 3:45)	
15	44	35	41															Snow began 3:30	
16	58	26	57																
17	66	51	63															On 15th I don't understand.	
18	63	40	49															in early A.M. it was	
19	59	27	46															about 19 for low	
20	63	32	58															but now at 5:00 it	
21	70	45	68															says -35.	
22	71	48	68																
23	72	56	61																
24	72	60	71																
25	73	54	67																
26	67	26	52															Don't know when	
27	65	50	60															Trace came on 25.	
28	69	50	64															Also on 28 or rather	
29	71	48	67															27 after 5:00	
30	80	46	76																
31	76	53	66																
SUM			SUM																
CONDITION OF RIVER AT GAGE				CHECK BAR (For wire-weight) NORMAL CK. BAR		OBSERVER										SUPERVISING OFFICE		STATION INDEX NO.	
																		38 2260 4	

- A. Obstructed by rough ice.  
 B. Frozen, but open at gage.  
 C. Upper surface of smooth ice.  
 D. Ice gorge above gage.  
 E. Ice gorge below gage.  
 F. Shore ice.  
 G. Floating ice.  
 H. Pool stage.

[illegible]

STATE OF SOUTH CAROLINA  
BEFORE THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

---

IN RE: Nucor Steel Corporation  
NPDES Permit #SC0035238  
Darlington County

---

CONSENT ORDER  
86-86-W

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Nucor Steel Corporation (Respondent) owns, operates and is responsible for a waste treatment facility in Darlington County, South Carolina.

The Discharge Monitoring Reports submitted by the Respondent to the South Carolina Department of Health and Environmental Control (Department) and the Department's Compliance Sampling and Operation and Maintenance Inspections have identified that the Respondent's wastewater treatment facility has consistently failed to achieve compliance with required National Pollutant Discharge Elimination System (NPDES) permit limits.

As a result of a meeting of the Respondent and the Department held in Columbia, South Carolina, on July 23, 1986, both parties agreed to the requirements set forth in this Consent Order.

Findings of Fact

1. The Respondent owns, operates and is responsible for a waste treatment facility and is permitted by the Department to operate in accordance with NPDES permit #SC0035238.
2. Discharge Monitoring Reports submitted since January 1985 to present, contained numerous instances of failure to comply with the final effluent criteria contained in the Respondent's NPDES permit.
3. Since January 1985, two Department Compliance Inspections and three Operation and Maintenance Inspections have been accomplished. These reports indicate unsatisfactory operating conditions and failure to

achieve final effluent conditions.

4. As a result of discussions at the conference it was determined that a proper method of sludge handling was needed.

#### Conclusions of Law

1. The Respondent is in violation of Section 48-1-90 of the Pollution Control Act of 1976, Code of Laws of South Carolina, as amended, in that it discharged wastewater into the environment in a manner which is not in compliance with its NPDES permit.
2. The Respondent is in violation of Section 48-1-110 of the Pollution Control Act of Code of Laws of South Carolina, in that it has operated a waste disposal facility in violation of the conditions of the NPDES permit issued by the Department.
3. The Respondent is liable for civil penalties under Section 48-1-330 of the Pollution Control Act of the 1976 Code of Laws, as amended, in that effluent limits have been contravened and proper operation and maintenance, as required by NPDES permit, has not been provided to ensure treatment capabilities are maximized.

NOW, THEREFORE, IT IS ORDERED, CONSENTED TO AND AGREED, pursuant to 1976 Code Section 48-1-50, as amended, that the Respondent shall:

1. Operate and maintain facility to maximize treatment capabilities.
2. Submit to the Department monthly process control report beginning September 15, 1986, through February 15, 1986, including the following tests and calculations:
  - a. Settrometer - daily
  - b. Sludge blanket depth - daily
  - c. Dissolved oxygen profile in the aeration basin - daily
  - d. Microscopic examination - one every 2 weeks
  - e. Mixed Liquor Suspended Solids (MLSS) - twice per week
  - f. Select and utilize at least one of the following three

activated sludge process control techniques:

<u>Control Technique</u>	<u>Frequency</u>	<u>Determination</u>
Constant F:M	2/week	Based on 5 day moving avg.
Constant MLVSS	2/week	Volatile solids inventory
Constant MCRT	2/week	Based on 3 to 5 day moving avg.

F:M = Food to Microorganism Ratio  
MLVSS = Mixed Liquor Volatile Suspended Solids  
MCRT = Mean Cell Residence Time

Utilize the data generated in the above tests to make necessary operation and maintenance corrections to assure optimum treatment.

3. Have certified engineer submit to the Department on or before September 15, 1986, a flow monitoring system to include an approvable proposal for equalization of flow.
4. Submit to the Department on or before September 15, 1986, a method of sludge disposal.
5. Immediately pay to the Department a civil penalty of four thousand dollars (\$4,000.00).

IT IS <sup>FURTHER</sup>~~FURTHER~~ ORDERED AND AGREED that failure to comply with any provision of this Order shall be grounds for appropriate sanctions and further enforcement action.



THE SOUTH CAROLINA DEPARTMENT OF  
HEALTH AND ENVIRONMENTAL CONTROL

BY:

Michael D. Jarrett  
Michael D. Jarrett  
Acting Commissioner

BY:

Robert G. Cross  
Robert G. Cross, Chief  
Bureau of Water Pollution Control

DATE: September 8, 1986

WE CONSENT:

D. Acil Magruder  
Controller for Nucor Steel Corporation

Date: September 2, 1986

Russell W. Baver  
Water Quality Assessment and Enforcement  
Division

Date: 4 September 1986

Carlisle Roberts, Jr.  
Attorney for the Department

Date: 9/8/86

February 16, 1978

Mr. W. E. Dauksch  
Nucor Steel Company  
P. O. Box 525  
Darlington, S. C. 29532

Re: Industrial Wastewater  
Darlington County

Dear Mr. Dauksch:

During the final inspection on February 15, 1978, of your sanitary wastewater treatment plant, other wastewater was found to be discharging to the plant stormdrains and thence to the stream. These discharges were (1) mill scale drainage at the sedimentation basin near the sanitary wastewater plant, (2) a small drain hole from the cooling tower associated with the same sedimentation basin, (3) a drain from the steam cleaning operation in the machine.

These drains can readily be modified to prevent any discharge to the stream. Please inform me in writing what actions will be taken to do so, as discussed with Frank Nesbitt at the time of the inspection. Such actions are to be carried out promptly as the unpermitted discharges are violations of the law.

If you have questions on this matter, do not hesitate to contact me.

Sincerely,

Andy Yasinsac, P.E.  
Industrial & Agricultural Wastewater Division  
Bureau of Wastewater & Stream Quality Control

AY:bc

cc: Ed Hart

REFERENCE  
15

nucor steel

A Division of NUCOR Corporation

Post Office Box 525 Darlington, South Carolina 29532 Telephone 803/393-5841

March 1, 1978

Mr. Andy Yasinsac  
S. C. Dept. of Health & Environmental Control  
Sims-Aycock Buildings  
2600 Bull Street  
Columbia, South Carolina 29201

Dear Mr. Yasinsac:

The wastewater that was found discharging into the plant stormdrains will be corrected as following:

1. Mill scale drainage will flow to a pit where a sump pump will pump it back into the recirculating pond.
2. The small drain hole in the cooling tower will be sealed.
3. The drain from the steam cleaning operation will go into a pit where settling and evaporation will take place.

Sincerely,

*W. E. Dauksch*

W. E. Dauksch  
Melt Supt.

WED:mh

RECEIVED

MAR 9 1978

NUCOR

INDUSTRIAL & AGRICULTURAL  
WASTEWATER DIVISION

September 16, 1985

Mr. Mark Millet, Metallurgist  
Nucor Steel  
P. O. Box 525  
Darlington, SC 29532

RE: Nucor Steel Landfill  
IWP-208  
Darlington County

Dear Mr. Millet:

Enclosed is Industrial Waste Permit #208 issued to Nucor Steel for the operation of an inert landfill. This permit is valid for a period of two (2) years. During this period, representatives from the department may conduct periodic inspections to ensure compliance with State regulations, permit conditions and the permit application.

If you have any questions, please feel free to contact this office at (803) 758-5681.

Sincerely,

Lynn C. Martin, Manager  
Eastern Facility Engineering  
Bureau of Solid & Hazardous Waste  
Management

LCM:elf

Enclosures

cc: Hartsill W. Truesdale  
Jim Kelley  
Lee Rawls

SOUTH CAROLINA DEPARTMENT OF HEALTH  
AND ENVIRONMENTAL CONTROL  
COLUMBIA, SOUTH CAROLINA  
APPLICATION FOR PERMIT TO CONSTRUCT  
SOLID WASTE MANAGEMENT SYSTEM

REFERENCE  
17 1/3

Date of Application 11/16/84 County Darlington

Name of Project (Location and Description) On-site landfill operation for disposal of inert, non-burnable, non-toxic wastes, such as broken concrete, stone, dirt.

Landfill to be on-site at Nucor Steel, Darlington Division.

Nearest Landfill (Name and Location) Darlington County Landfill - Landfill Road  
(off U. S. 52) Darlington, S. C.

Type(s) and Amount(s) of Waste(s) Generated Broken concrete, excavation dirt,  
crushed stone, approximately 100 cu. ft. per week.

This application is being made on behalf of Nucor Steel  
(Company)

whose address is Highway 52N, Dovesville Highway, P. O. Box 525, (North of Darlington)  
Darlington, S. C. 29532

An engineering report consisting of plans, specifications, process flow sheets with sufficient data for a material and/or heat balance (where applicable), products manufactured, laboratory analyses of waste(s), and analyses of alternative methods of disposal is herewith submitted and made part of this application.

Designing Engineer

Company Official Directly Responsible

\_\_\_\_\_

Mark Millett

\_\_\_\_\_  
(Address)

Mark Millett  
Chief Metallurgist  
(Official Title)

\_\_\_\_\_  
(Phone)

(803) 393-5841  
(Phone)

Application No. \_\_\_\_\_

File in Quadruplicate.

RECEIVED

U.S. DEPT. OF HEALTH AND ENVIRONMENTAL CONTROL  
Bureau of Solid & Hazardous Waste Management

A Division of NUCOR Corporation

December 8, 1988

4/15/88  
on 4/15/88  
WASTE LANDFILL

Dear Ms. Grunsky:

Yours very truly,

Walter E. Posteltywait

Walter E. Postlethwait  
Chief Metallurgist

WEP/mz

cc: Pat Spivey  
Herb Riggs

# RUGOR

10765 AUGUSTA HIGHWAY  
SUITE "B"  
PO BOX 510072

220 AVERY LANE  
COLUMBIA SC 29210  
PHONE (803) 957-4400

## ENVIRONMENTAL SERVICES

DATE : August 29, 1988  
LAB# : 880811-06  
JOB# : 00684

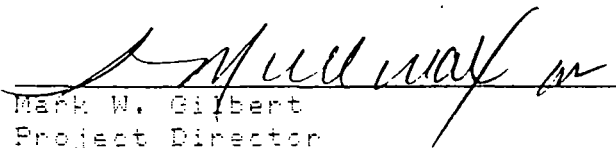
REPORT OF : EP TOXICITY

CLIENT : NUCOR STEEL COMPANY  
MR. WALLY POSTLEWAIT  
POST OFFICE BOX 525  
DARLINGTON SC 29532

Samples were received by Columbia Analytical Laboratories, Inc.  
on 08/11/88 at 16:36, and were collected using proper EPA protocol.  
LABORATORY ID # 82114. ORGANICS AND TOC LABORATORY ID # 10120.

SAMPLE#	DESCRIPTION	PARAMETER	RESULTS	UNITS
1		SILVER	<0.1	mg/L
		ARSENIC	<0.1	mg/L
		BARIUM	<1	mg/L
		CADMIUM	<0.1	mg/L
		CHROMIUM	<0.1	mg/L
		MERCURY	<0.1	mg/L
		LEAD	<0.1	mg/L
		SELENIUM	<0.1	mg/L

Respectfully submitted,  
Columbia Analytical Laboratories

  
Mark W. Gilbert  
Project Director

MATERIAL TESTED: MILL SCALE

4265 AUGUSTA HIGHWAY  
SUITE "G"  
DARLINGTON S.C. 29072220 AVERY LANE  
COLUMBIA SC 29210  
PHONE (803) 957-6608

## ENVIRONMENTAL SERVICES

DATE: 10/06/87  
LAB # 4295  
PROJECT#

REPORT OF : WASTE SLUDGE ANALYSIS/RESULTS OF E.P. TOXICITY EXTRACTION PROCEDURE

CLIENT: NUCOR STEEL COMPANY

MR. WALLY POSTLETHWAIT

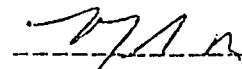
POB 525

DARLINGTON,

SC 29532

SAMPLES RECEIVED BY THE LAB AT 11:30 AM ON 09/24/87 BY MARK W. GILBERT.

RESULTS		
PARAMETER		MAXIMUM LIMITS (MG/L)...
1. ARSENIC	(0.05	5.0
.. (MG/L).....		
2. BARIUM	(1.0	100
.. (MG/L).....		
3. CADMIUM	(0.10	1.0
.. (MG/L).....		
4. CHROMIUM	(0.10	5.0
.. (MG/L).....		
5. LEAD	(0.10	5.0
.. (MG/L).....		
6. MERCURY	(0.1	0.2
.. (MG/L).....		
7. SELENIUM	(0.01	1.0
.. (MG/L).....		
8. SILVER	(0.10	5.0
.. (MG/L).....		

MATERIAL TESTED: SOLID MATERIAL DREDGED FROM  
RECIRCULATING PONDSRESPECTFULLY SUBMITTED,  
COLUMBIA ANALYTICAL LABORATORIES1 CC:MR. WALLY POSTLETHWAIT  
1 CC:LAB FILE  
MARK W. GILBERT  
LABORATORY MANAGER



REFERENCE

19

nucor steel

A Division of NUCOR Corporation

Post Office Box 525 Darlington, South Carolina 29532 Telephone 803/393-5841

October 14, 1992

Robert L. Gill, P.E., Manager  
 Facility Engineering Section  
 Division of Solid Waste Management  
 Bureau of Solid and Hazardous Waste Management  
 S.C. DHEC  
 2600 Bull St.  
 Columbia, S.C. 29201

RECEIVED

OCT 16 1992

S. C. DEPT. OF HEALTH &  
 ENVIRONMENTAL CONTROL  
 Bureau of Solid & Hazardous  
 Waste Management

Dear Mr. Gill:

The following provides a list of the waste streams Nucor currently desires to dispose of in our on-site landfill and the associated information used to characterize the wastes.

<u>Material</u>	<u>Amount/Frequency</u>	<u>Characterization of Waste</u>
Grease Residue	300 cu. yds /year	Approval letter from F.M. Carns dated July 15, 1992.
Refractories	300 cu. yds /year	This material has been evaluated with respect to R.61-79.262.11 & 266.4(e) and does not meet the conditions of a hazardous waste. TCLP data is enclosed. Some of this material may be suitable for re-use in the furnace of our new meltshop that is scheduled to start-up September, 1993.
Untreated Wood 4" x 4" Timbers Pallets	500 cu. yds /year	Non-contaminated, not to be burned on-site. This material is offered free to employees for firewood and does not accumulate during the winter months. We are investigating sources other than landfilling for the accumulation during the summer.
Concrete Rubble, Excavation Dirt, Crushed Stone	300 cu. yds /year	This is inert material and does not fall in the regulations.

I hope this information will be satisfactory in responding to your letter of August 17, 1992. Please do not hesitate to contact me if further information is necessary.

Sincerely,



Wally Postlethwait  
 Chief Metallurgist

cc: Howard Moseley  
 April Grunsky

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF SOLID AND HAZARDOUS WASTE MANAGEMENT  
CONSTRUCTION WASTE PERMIT - CWP-041, Cell I

Date of Issue: March 15, 1993      Effective Date: April 14, 1993

Permission is hereby granted to:

Name of Facility:

Address:

Supervisor:

Phone:

Nucor Steel

P.O. Box 525

Darlington, SC 29532

Walter E. Postlethwait

(803) 393-5841

for the operation of a construction waste landfill located on plant site property.

This permit is issued pursuant to Section 48-1-10 et seq. and 44-1-140 (11) of the 1976 South Carolina Code of Laws, as amended, and South Carolina Rule(s) and Regulations(s) R.61-70, including the Permitting Protocol approved by the SC DHEC Board on March 11, 1993. The authority granted hereunder is subject to the requirements of the aforementioned laws and regulations and the attached conditions.

\_\_\_\_\_  
William W. Culler, P.E., Director  
Division of Solid Waste Management  
Bureau of Solid and Hazardous Waste  
Management

This permit is non-transferable and is the property of the Bureau of Solid and Hazardous Waste Management and must be surrendered on demand.

If the permit is appealed, the effective date of the permit will be revised as necessary. Any request for review or appeal of this permit must be served in person or by mail within fifteen (15) days of the date of issuance, on:

The Board of Health and Environmental Control  
Office of the Commissioner  
2600 Bull Street  
Columbia, South Carolina 29201  
(803) 734-4880

Nucor Steel Landfill  
CWP-041, Cell I

A. General IWP Permit Conditions

1. The Permittee shall adhere to the approved design plans and specifications and operational plan, dated March 5, 1993, unless permit conditions state otherwise.
2. This permit is limited to the disposal of the following waste(s) in Cell I only: grease residue, refractories, untreated wood, concrete rubble, clean excavation dirt, crushed stone and untreated wood ash.
3. It is the Permittee's responsibility to ensure that no other waste is disposed at this site. If the Permittee determines the need to dispose of any waste other than that listed in permit condition two (2), prior written approval must be obtained from the Bureau of Solid and Hazardous Waste Management. Each request shall be made in writing to the attention of: Manager, Waste Assessment Section, cc: Director, Solid Waste Management.
4. All waste shall be covered every ninety (90) days with a minimum of six (6) inches of clean soil.
5. Should a disposal area become inundated or have measurable water contained, steps must be taken to remove this water before continuing disposal of waste.
6. This permit will be subject to an environmental compliance review at least once every 5 years. Upon notification for review by the Department, the permittee will have sixty (60) days to submit the following information:
  1. Remaining operating life of site
  2. Type(s) of waste(s) disposed into site
  3. Quantity of waste(s) disposed into site
  4. Other information/data that might be in conflict with conditions of the permit.

B. Ground Water Permit Conditions

None

## Closure/Post Closure Care Permit Conditions

1. The Permittee will be responsible for submitting a detailed closure/post-closure plan one (1) year prior to the landfill reaching permitted capacity. Post closure care shall be conducted for a period of thirty (30) years unless a variance is applied for and obtained by the Permittee.

### D. Special Permit Condition

1. Analytical test requirements for the waste streams listed in permit condition two (2) are the following:
  - a) Eight (8) Drinking Water Metals plus Nickel per Toxicity Characteristic Leaching Procedure (SW846-1311).
  - b) Total Petroleum Hydrocarbon (SW846-3550).
  - c) Total Organic Halogens (SW846-9020 or 8010).

The testing frequency should be done June 1993, December 1993, December 1994, and then once every two (2) years thereafter. This aforementioned frequency of testing is based upon satisfactory (non-hazardous waste status) results of analytical testing data correlated with the applicability of R.61-79-262.11 to the waste streams listed in permit condition two (2).

2. Once the concrete plant has been removed, Nucor Steel must propose more security for the remaining cells. The areas of concern will be the four (4) foot berm and the stretch from the gate to the woods.

REFERENCE  
21

# South Carolina Department of Health and Environmental Control

2600 Bull Street  
Columbia, S.C. 29201



Commissioner  
Robert S. Jackson, M.D.

Board  
Moses H. Clarkson, Jr., Chairman  
Gerald A. Kaynard, Vice-Chairman  
Oren L. Brady, Jr., Secretary  
Barbara P. Nuessle  
James A. Spruill, Jr.  
William H. Hester, M.D.  
Euta M. Colvin, M.D.

## OFFICE OF ENVIRONMENTAL QUALITY CONTROL BUREAU OF AIR QUALITY CONTROL

Nucor Steel  
P.O. Box 525  
Darlington, South Carolina 29532

ursuant to the provisions of the Pollution Control Act, Sections 8-1-50(5) and 48-1-110(a), 1976 Code of Laws of South Carolina and Regulation 61-62.1, Section IIB, the Bureau of Air Quality Control authorizes the operation of the equipment specified herein in accordance with the plans, specifications and other information submitted in the construction permit application. This permit is subject to all conditions and operating limitations contained herein.

<u>No.</u>	<u>Description</u>
1	13.25 ton/hr electric arc furnace; baghouse
2	13.25 ton/hr electric arc furnace; baghouse
3	13.25 ton/hr electric arc furnace; baghouse
4	29.5 ton/hr electric arc furnace; baghouse; NSPS source
5	29.5 ton/hr electric arc furnace; baghouse; NSPS source
6	100 x 10 <sup>6</sup> BTU/hr reheat furnace; baghouse

### STANDARD CONDITIONS

- A. The permit to operate may be renewed upon evidence of satisfactory operational experience during the prior operating period.
- B. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section IIC.

Conditions And Limitations Listed On Pages 2 and 3

Permit Number: 0820-0001

C. SOURCE TEST SCHEDULE

<u>ID No.</u>	<u>Pollutant</u>	<u>Frequency</u>
04&05	TSP	Every 2 years (Method 5)

D. ADDITIONAL CONDITIONS

ID No.

04&05 All monitors and recorders (i.e. opacity, shell pressure and flow rate) must be working properly, especially during shop opacity evaluation and source testing.

04&05 The setting of flow rates, based on shop opacity, shall be performed by this agency 30-60 days prior to source testing.

04&05 An acceptable source test shall be then be submitted with the methodology having been approved by this agency.

04&05 Sixty (60 days) prior to intent to source test, this agency must be notified so that the shop opacity determination may be performed.

04&05 The source test must be conducted while both furnaces are operating at maximum normal operating capacity.

04&05 Baghouse pressure drop gauges and cleaning-cycle timer shall be maintained.

04&05 Continuous monitoring systems for the measurement of opacity, shell pressure, and flow rate must be maintained and calibrated by the owner/operator in accordance with subparts of the New Source Performance Standards (NSPS) 40CFR60.

06 The rehear furnace is to be fired on natural gas ~~only~~ or # 6 oil

06 The usage of # 6 oil is to be limited to 1,594,000 lbs. and records verifying this must be kept and be made available to BHCC per.

No deviation from the plans and specifications submitted with your application or the conditions specified herein is permitted, unless authorized in writing by the Bureau of Air Quality Control. The owner/operator is responsible for satisfactory compliance with all Air Pollution Regulations and Standards.

PERMIT NUMBER: 0820-0001  
ISSUED ON December 18, 1985  
EXPIRES ON THE LAST DAY OF April, 1989  
PLANT LOCATION: Darlington

SIC CODE: 3313

*William W. Culler*

William W. Culler, P.E., Director  
Engineering Services Division  
Bureau of Air Quality Control

South Carolina  
**DHEC**  
Department of Health and Environmental Control  
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman  
John H. Burriss, Vice Chairman  
Richard E. Jabbour, DDS, Secretary

*Promoting Health, Protecting the Environment*

REFERENCE

23

Nucor

Toney Graham, Jr., MD  
Sandra J. Molander  
John B. Pate, MD  
Robert J. Stripling, Jr.

January 7, 1992

CERTIFIED

Mr. Francis Mood  
Attorney At Law  
P.O. Box 1889  
Columbia, SC 29211-1889

Dear Mr. Mood:

Enclosed is a copy of fully executed Administrative Consent Order #92-1-A for Nucor Steel Corporation, Darlington, South Carolina. Payment of the civil penalty in the amount of fifty thousand dollars (\$50,000.00) is due within thirty (30) days of the execution date of the order. Payment should be sent to me at the following address:

Bureau of Air Quality Control  
SC Dept. Health & Environ. Control  
2600 Bull Street  
Columbia, SC 29201

Thank you for your cooperation in this matter.

Sincerely,

Dennis A. Ellenwood  
Air Compliance Section  
Bureau of Air Quality Control

cc: J. Chalmers, BAQC  
R. Brown, BAQC  
D. Smith, Pee Dee District  
T. Leydic, V. Pres., Nucor Steel

enclosure

STATE OF SOUTH CAROLINA  
COUNTY OF RICHLAND  
IN RE: Nucor Steel Corporation  
P.O. Box 525  
Darlington, SC 29532

---

) BEFORE THE SOUTH CAROLINA  
) DEPARTMENT OF HEALTH AND  
) ENVIRONMENTAL CONTROL  
)  
)  
)  
)  
)  
)  
)  
)  
)

CONSENT ORDER

92-1-A

The Department of Health and Environmental Control, Bureau of Air Quality Control ("Department") and Nucor Steel Corporation, Darlington, South Carolina, ("Nucor") without the adjudication of any issues of fact or law, and upon the consent of the parties concerned hereto, hereby agree to the terms of this Consent Order as follows:

WHEREAS Nucor owns and operates a facility in Darlington, South Carolina which manufactures plain carbon and low alloy steel for structural and special bar quality; and,

WHEREAS in their manufacture of steel, Nucor utilizes an area designated as the Old Melt Shop, Meltshop #1, consisting in part of Electric Arc Furnaces #1, #2, & #3 and an area designated as the New Melt Shop, Meltshop #2, consisting in part of Electric Arc Furnaces #4 & #5; and,

WHEREAS the New Melt Shop by virtue of its date of construction is subject to U.S. Environmental Protection Agency (EPA) New Source Performance Standards and South Carolina Air Pollution Control Regulations; and,

WHEREAS an inspection conducted by EPA personnel on September 12, 1990 indicated that Nucor failed to comply with EPA 40 CFR Part 60.272 in that visible emissions from baghouse #2 exceeded the maximum allowable three (3) percent opacity; and,

2



WHEREAS an inspection conducted by Department personnel on February 5, 1991 indicated that Nucor failed to comply with EPA Regulation 40 CFR 60.272 and South Carolina Air Pollution Control Regulation No. 61-62.1 in that emissions from the New Melt Shop roof exceeded the maximum allowable twenty (20) percent opacity; and,

WHEREAS inspections conducted by Department personnel on February 6 and March 27, 1991 indicated that Nucor failed to comply with South Carolina Air Pollution Control Regulation No. 61-62.1 in that emissions from the Old Melt Shop roof exceeded the maximum allowable twenty (20) percent opacity; and,

WHEREAS an August 6, 1991 inspection conducted by EPA and the Department indicated that Nucor failed to comply with EPA Regulation 40 CFR 60.274 and South Carolina Air Pollution Control Regulation No. 61-62.1 and Operating Permit #0820-0001 in that the following violations were noted:

- 1) In response to a Department inquiry Nucor indicated that the #4 Furnace shell pressure monitor was not operating correctly and had not operated correctly for at least ten (10) days;

- 2) The flow recorder for #4 furnace was not operating correctly;

- 3) The #1 furnace was apparently being overcharged;

- 4) A required indicator meter for the #5 canopy damper was reading 0 percent during refining, making it impossible for the Department to properly determine if the damper was in the proper position; and,

- 5) Visible emissions from the Old Melt Shop roof appeared to exceed the twenty (20) percent opacity; and,

WHEREAS the Department finds that the excess visible emissions and other permit condition violations noted herein have resulted in the potentiality of the public being exposed to unacceptable levels of air pollution; and,

WHEREAS Nucor desires to waive formal hearing procedures and consents to administrative action to a lesser degree than curtailment or cessation of operations.

IT IS THEREFORE ORDERED with the consent of Nucor Steel Corporation and under authority of Sections 48-1-50(3) and 48-1-330 of the 1976 Code of Laws of South Carolina, as amended, and in settlement of the violations cited above that Nucor Steel Corporation shall:

I. Elect one of the two options outlined below to ensure future compliance with applicable State and Federal Regulations.

A. Construction of a New Melt Shop with "state of the art" pollution control equipment to replace the Old Melt Shop.

B. Refurbish the electric furnace dust baghouse systems to ensure that future facility emissions comply with applicable State and Federal Regulations according to the following time table;

1. Complete a study of emission control alternatives to be completed by April 30, 1991 including field assessment, analysis, and review.

2. Complete basic engineering by November 30, 1991 to include process design (primary and secondary emission control), equipment selection and layout, Departmental permitting process (modelling, environmental and construction permits), and preliminary design.

3. Complete detail engineering by June 30, 1992 to include foundations, structural steel, accessing steel, electrical work, instrumentation, mechanical and ductwork design, specification packages, and contractor scope of work.

4. Complete bid period by July 31, 1992 to include updating quotations from preliminary bids, issuance of long lead item orders, and issuance of all necessary purchase orders.

5. Complete equipment fabrication/delivery by June 30, 1993 to include equipment (fans, motors, baghouses, dust handling, control panels, instrumentation, etc.), ductwork (ducts, hoods), and structural access steel and support steel.

6. Demonstrate final compliance no later than December 31, 1993 to include performance testing and obtaining of operating permits.

II. Submit to the Department within ten (10) days of the end of each calendar quarter a written status report on the progress of the project. In the event that a scheduled action is not completed on or before the scheduled date, a full description of the problems and/or circumstances encountered in implementing the requirements of this Order shall be submitted to the Department immediately.

III. Obtain construction permits prior to commencing any work to construct, alter, or add to a source of air contaminants, including installation of any device for the control of air contaminant discharges. Once construction is complete, a written request to obtain an operating permit shall be submitted to the Department no later than fifteen (15) days prior to placing the source in operation.

o

IV. During the refurbishing project or the new melt shop construction project Nucor shall take whatever interim actions are necessary to ensure compliance with applicable State and Federal Regulations. The Department should be notified verbally concerning the nature of the interim actions and the actions should be detailed in the quarterly status reports.

V. Pay to the Department a civil penalty in the amount of fifty thousand dollars (\$50,000.00) within thirty (30) days of the effective date of the Order in settlement of past violations of State and Federal Regulations.

AND IT IS SO ORDERED.

FOR THE SOUTH CAROLINA DEPARTMENT  
OF HEALTH AND ENVIRONMENTAL CONTROL

Michael D. Jarrett  
Michael D. Jarrett, Commissioner

Date: January 6 1992  
Columbia, South Carolina

FOR THE DEPARTMENT

James A. Joy  
James A. Joy, III, Chief  
Bureau of Air Quality Control

Date: 1/6/92

William P. Brantley  
William P. Brantley, Director  
Air Compliance & Management Division  
Bureau of Air Quality Control

Date: 12/23/91

William Brantley  
DHEC Legal Counsel

Date: 6 Jan 92

FOR NUCOR STEEL CORPORATION

Thomas J. ...

Date: 17 December 1991

Date: \_\_\_\_\_

South Carolina  
**DHEC**  
Department of Health and Environmental Control  
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman  
Richard E. Jabbour, DDS, Vice Chairman  
Robert J. Stripling, Jr. Secretary

Promoting Health. Protecting the Environment

REFERENCE 25

William E. Applegate, III,  
Toney Graham, Jr., MD  
Sandra J. Molander  
John B. Pate, MD

April 19, 1993

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Attention: Mr. Walter Postlethwaite

Dear Mr. Postlethwaite:

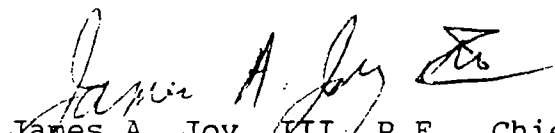
Your permit application has been reviewed by our engineering staff. It is our opinion that the proposed unit can, with proper operation and maintenance, comply with the South Carolina Air Quality Control Regulations and Standards and the Federal Standards of Performance for New Stationary Sources.

In addition to this permit to construct, a permit to operate is required in accordance with the Air Pollution Control Regulations and Standards for the State of South Carolina. The regulations require a written request to obtain an operating permit to be submitted to this agency no later than 15 days prior to placing the new, increased, or altered source in operation.

Enclosed is Construction Permit No. 0820-0001-CG thru CR. Please note the conditions on the permit by reading it carefully. In order to comply with the Department Regulation 61-72, this construction permit is not effective until 15 calendar days after the date of issue listed on the construction permit.

If you have any comments concerning this permit, please contact the appropriate engineer, Robert J. Brown, Jr., (803-734-4528), within 15 days of receipt.

Very truly yours,

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

JAJ:RJBjr

Enclosure

cc: Mr. Don Smith, Pee Dee District EQC Office

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Permission is hereby granted to construct a 110 steel billet ton/hr melt shop facility with a yearly output of 840,000 billet tons/year. This melt shop will be located at the present Nucor plant site and will replace the two existing shops when completed. Emissions will be controlled by a 540,000 ACFM baghouse and by approved operating procedures to be specified in the O&M Manual. This facility contains a EAF which is subject to NSPS Subpart AAa.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.

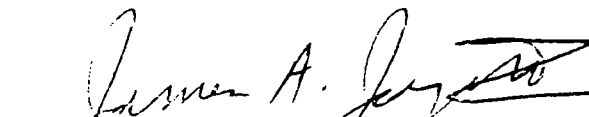
CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.
2. THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING OF THE DATE CONSTRUCTION BEGAN NO LATER THAN 30 DAYS AFTER SUCH DATE, THE ANTICIPATED DATE OF START-UP 30-60 DAYS PRIOR TO SUCH DATE AND THE ACTUAL DATE OF START-UP WITHIN 15 DAYS AFTER SUCH DATE OF EACH PERMITTED FACILITY.
3. This construction permit shall expire one year from date issued, unless this agency has been notified.
4. An expired construction permit may be reactivated only upon the written request of the permittee, subject to all laws, regulations, and standards applicable at the time of reactivation.

(SEE PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

This is pursuant to the provisions of Section 48-1-110, 1976 Codes of South Carolina, as amended, and the South Carolina Air Quality Control Regulation 62.1, Section II and the Code of Federal Regulations, Title 40, Part 60, Subpart A.

CONSTRUCTION PERMIT NUMBER: 0820-0001-CG  
PLANT LOCATION: U.S Hwy 52-401 North, Darlington (Dovesville)  
DATE OF ISSUE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CG  
DATE OF ISSUE: April 19, 1993  
page 2

I. Standard Conditions

- A. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section II, Paragraph C and 40CFR60 Subpart A.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

<u>ID. No.</u>	<u>Pollutant</u>	<u>Emission Limitation</u>
CG	PM	0.0052 grs/DSCF and 22.29 lbs/hr from main baghouse (Method 5 or 5D)
CG	NO <sub>x</sub>	21.89 lbs/hr and 76.8 TPY (Method 7E)
CG	CO	603.2 lbs/hr and 2303.7 TPY (Method 10)
CG	Opacity	3%, from a control device (Method 9) 6%, from the EAF emissions exiting the melt shop (Method 9) 20%, from other operations' emissions exiting the melt shop (Method 9) 10%, from the dust handling system (Method 9)

The above emission limitations are based on operation at rated capacity. Operation at other than rated capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the Code of Federal Regulations (40CFR60 Appendix A).

B. CONTINUOUS MONITORING REQUIREMENTS

<u>ID. No.</u>	<u>Pollutant</u>
CG	Opacity (from the main baghouse)

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CG  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CG An Operations & Maintenance Manual will be prepared which specifies proper operation and repair of each permitted unit and its emission controls. Deficiencies or omissions in the Manual will be corrected within six months of notification from this Bureau. Unit and baghouse operators will be trained in the proper operation of their respective units. This manual will be updated as required to reflect changes in operations, equipment, etc.

CG There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CG Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CG The LMF (ID #CI) shall not be operated with a defective delta section, with a damaged capture hood or with other disrepair that will significantly reduce the emission capture efficiency.

CG The EAF (ID #CH) shall not be operated with a defective roof or with other disrepair that will significantly reduce the efficiency of the direct evacuation through the scrap preheating system.

CG Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CG An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.



Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CG  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CG Main baghouse fans will be operated and maintained in such a manner as to deliver full operating efficiency. At least two fans will be on-line during normal plant operations. Should fan failure or other circumstances leave one fan on-line, operation of the EAF will be curtailed until two fans are on line. Procedures for minimizing fan down time will be prepared and included in the O&M Manual. Fan outages will be reported no later than the beginning of the next working day to the District Office following such events. Written notification of the incidence will include down times, items repaired, and other pertinent information

CG No roof or upper side openings in the melt shop will be permitted other than that detailed and approved prior to the permit issuance. No other openings may be placed without prior written approval from this Bureau. No siding shall be removed from the melt shop building without prior approval from this Bureau.

CG Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity (6% from the EAF). Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CG Particulate emissions from the main baghouse shall not exceed 0.0052 grs/DSCF and 22.29 lbs/hr. NO<sub>x</sub> emissions from this facility will not exceed 21.89 lbs/hr and 76.8 TPY. CO emissions from this facility will not exceed 603.2 lbs/hr and 2303.7 TPY.

CG Accidental fires in scrap material, etc, will be extinguished promptly. No material will be burned on the melt shop floor as a waste disposal method. Lances will be used in such a manner as to minimize fugitive emissions from the melt shop.

CG Fugitive emissions from slag handling in the melt shop shall be minimized to the maximum extent possible. This will be done by implementing proper handling procedures and enforcing their use.

CG Quarterly reports will be submitted on the baghouse opacity readings. Semiannual reports will be submitted as required in 40CFR60.276a (Subpart AAa).

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CG  
DATE OF ISSUE: April 19, 1993  
page 5

C. ADDITIONAL CONDITIONS

CG Source tests for PM, NO<sub>x</sub>, CO and opacity will be conducted within 180 days of EAF (ID #CH) startup. ID #s CI-CO and other ancillary equipment needed for facility operation will be on-line and operating during these tests.

CG The source tests shall be conducted while the facility is operating under permitted conditions and at its expected maximum production rate. Areas of concern include, but are not limited to, collection device airflows and pressure drops, material throughputs, etc. Source tests conducted under any other conditions may result in production limitations.

CG Testing procedures on these units will follow requirements listed in 40CFR60.8 (Subparts A & AAa), S.C. Regulations 62.5, Standard #4, Section XIII.

CG Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CG The EAF in this facility is subject to 40CFR60 subparts A & AAa. The requirements for reporting, testing, instrumentation, etc., will be completed as described in these subparts.

CG A protocol for the monitoring of emissions and operations as required by 40CFR60.273a and 40CFR60.274a, subpart AAa will be developed and submitted to this Bureau for approval before startup. Any deviation from the approved protocol must have prior written approval from this Bureau.

CG Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CG The reheat furnaces will be fired with natural gas or propane only. The ladle and tundish preheaters and dryers along with the other melt shop ancillary equipment will be fired with natural gas or propane only. The use of fuel oil, waste oil, hazardous waste, or any other waste chemical as a fuel in any unit shall not be allowed without prior written approval from this Bureau.

CG Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CG  
DATE OF ISSUE: April 19, 1993  
page 6

C.    ADDITIONAL CONDITIONS

CG    Visible emissions caused by raw material storage piles, product storage piles and slag storage piles shall not exceed an average of 10% opacity for any two consecutive readings in a series of such readings taken at 15 second intervals.

CG    The loading, transportation, and unloading or dumping of vehicles will be operated so as to keep fugitive dust emissions to a minimum. This will include, but not necessarily be limited to, proper wetting of materials and operator care to minimize fugitive dust; also these operations shall not exceed 20% opacity averaged for any two consecutive readings taken at 15 second intervals.

CG    All paved roads within the plant boundaries will use water sprays, vacuum sweepers, and/or chemical suppression for control of fugitive dust where necessary. All unpaved roads will use either water or chemical suppression and the excess accumulation of dirt or dust on all roadways will be minimized. Visible emissions caused by vehicular traffic on any plant road shall not exceed 20% opacity averaged for any two consecutive readings taken at 15 second intervals.

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Permission is hereby granted to construct a 110 steel billet ton/hr DC powered Electric Arc Furnace (EAF) with integral "Consteel" scrap preheating. Yearly output is to be 840,000 billet tons/year. Emissions will be controlled by evacuation through the "Consteel" preheating system and by an overhead 60'x56' canopy hood to a new main baghouse. This EAF is subject to NSPS Subpart AAa.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.

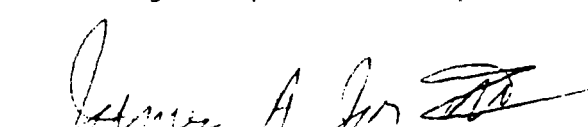
CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.
2. THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING OF THE DATE CONSTRUCTION BEGAN NO LATER THAN 30 DAYS AFTER SUCH DATE, THE ANTICIPATED DATE OF START-UP 30-60 DAYS PRIOR TO SUCH DATE AND THE ACTUAL DATE OF START-UP WITHIN 15 DAYS AFTER SUCH DATE OF EACH PERMITTED FACILITY.
3. This construction permit shall expire one year from date issued, unless this agency has been notified.
4. An expired construction permit may be reactivated only upon the written request of the permittee, subject to all laws, regulations, and standards applicable at the time of reactivation.

(SEE PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

This is pursuant to the provisions of Section 48-1-110, 1976 Codes of South Carolina, as amended, and the South Carolina Air Quality Control Regulation 62.1, Section II and the Code of Federal Regulations, Title 40, Part 60, Subpart A.

CONSTRUCTION PERMIT NUMBER: 0820-0001-CH  
PLANT LOCATION: U.S Hwy 52-401 North, Darlington (Dovesville)  
DATE OF ISSUE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CH  
DATE OF ISSUE: April 19, 1993  
page 2

I. Standard Conditions

- A. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section II, Paragraph C and 40CFR60 Subpart A.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

<u>ID. No.</u>	<u>Pollutant</u>	<u>Emission Limitation</u>
CH	PM	0.0052 grs/DSCF, from Main Baghouse (Method 5 or 5D)
CH	Opacity	3%, from a control device (Method 9) 6%, from the melt shop (Method 9) 10%, from the dust handling system (Method 9)

The above emission limitations are based on operation at rated capacity. Operation at other than rated capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the Code of Federal Regulations (40CFR60 Appendix A).

B. CONTINUOUS MONITORING REQUIREMENTS

<u>ID. No.</u>	<u>Pollutant</u>
CH	Opacity

C. ADDITIONAL CONDITIONS

CH An Operations & Maintenance Manual will be prepared which specifies proper operation and repair of each permitted unit and its emission controls. Deficiencies or omissions in the Manual will be corrected within six months of notification from this Bureau. Unit and baghouse operators will be trained in the proper operation of their respective units. This manual will be updated as required to reflect changes in operations, equipment, etc.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CH  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CH There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CH Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CH The furnace shall not be operated with a defective roof or with other disrepair that will reduce the direct evacuation through the scrap preheating system.

CH Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. Any main baghouse compartment with more than 1% of the bags unserviceable will be isolated until the situation is corrected. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CH An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CH Main baghouse fans will be operated and maintained in such a manner as to deliver full operating efficiency. At least two fans will be on-line during normal plant operations. Should fan failure or other circumstances leave one fan on-line, operation of the EAF will be curtailed until two fans are on line. Procedures for minimizing fan down time will be prepared and included in the O&M Manual. Fan outages will be reported no later than the beginning of the next working day to the District Office following such events. Written notification of the incidence will include down times, items repaired, and other pertinent information

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CH  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CH No roof or upper side openings in the melt shop will be permitted other than that detailed and approved prior to the permit issuance. No other openings may be placed without prior written approval from this Bureau. No siding shall be removed from the melt shop building without prior approval from this Bureau.

CH Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity (6% from the EAF). Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CH Particulate emissions from the main baghouse shall not exceed 0.0052 grs/DSCF and 22.29 lbs/hr. NO<sub>x</sub> emissions from this facility will not exceed 21.89 lbs/hr and 76.8 TPY. CO emissions from this facility will not exceed 603.2 lbs/hr and 2303.7 TPY.

CH Fugitive emissions from slag handling in the melt shop shall be minimized to the maximum extent possible. This will be done by implementing proper handling procedures and enforcing their use.

CH Quarterly reports will be submitted on the baghouse opacity readings. Semiannual reports will be submitted as required in 40CFR60.276a (Subpart AAa).

CH Source tests for PM, NO<sub>x</sub>, CO and opacity will be conducted within 180 days of EAF (ID #CH) startup. ID #s CI-CO and other ancillary equipment needed for facility operation will be on-line and operating during these tests.

CH The source tests shall be conducted while the facility is operating under permitted conditions and at its expected maximum production rate. Areas of concern include, but are not limited to, collection device airflows and pressure drops, material throughputs, etc. Source tests conducted under any other conditions may result in production limitations.

CH Testing procedures on these units will follow requirements listed in 40CFR60.8 (Subparts A & AAa), S.C. Regulations 62.5, Standard #4, Section XIII.

CH Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CH  
DATE OF ISSUE: April 19, 1993  
page 5

C. ADDITIONAL CONDITIONS

CH This EAF is subject to 40CFR60 subparts A & AAa. The requirements for reporting, testing, instrumentation, etc., will be completed as described in this subpart.

CH A protocol for the monitoring of emissions and operations as required by 40CFR60.273a and 40CFR60.274a, subpart AAa will be developed and submitted to this Bureau for approval before startup. Any deviation from the approved protocol must have prior written approval from this Bureau.

CH Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel plant site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CH Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.



OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Permission is hereby granted to construct an AC powered Ladle Metallurgical Furnace (LMF). Yearly throughput is to be 840,000 billet tons/year. This unit will be equipped with argon stirring. PM Emissions will be captured by a side draft hood (vented to the main baghouse) through which the electrodes extend.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.

CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.
2. THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING UPON THE BEGINNING OF CONSTRUCTION AND THE STARTUP OF EACH PERMITTED FACILITY.
3. This construction permit shall expire one year from date issued, unless this agency has been notified.
4. An expired construction permit may be reactivated only upon the written request of the permittee, subject to all laws, regulations, and standards applicable at the time of reactivation.

(SEE PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

This is pursuant to the provisions of Section 48-1-110, 1976 Codes of South Carolina, as amended, and the South Carolina Air Quality Control Regulation 62.1, Section II.

CONSTRUCTION PERMIT NUMBER: 0820-0001-CI  
PLANT LOCATION: U.S Hwy 52-401 North, Darlington (Dovesville)  
DATE OF ISSUE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CI  
DATE OF ISSUE: April 19, 1993  
page 2

I. STANDARD CONDITIONS

- A. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section II, Paragraph C.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

<u>ID. No.</u>	<u>Pollutant</u>	<u>Emission Limitation</u>
CI	PM	0.0052 grs/DSCF, from Main Baghouse (Method 5 or 5D)
CI	Opacity	3%, from a control device (Method 9) 20%, from the melt shop (Method 9) 10%, from the dust handling system (Method 9)

The above emission limitations are based on operation at rated capacity. Operation at other than rated capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the Code of Federal Regulations (40CFR60 Appendix A) as in effect on the date of this permit issuance.

B. CONTINUOUS MONITORING REQUIREMENTS

ID No.	Pollutant
--------	-----------

N/A

C. ADDITIONAL CONDITIONS

CI An Operations & Maintenance Manual will be prepared which specifies proper operation and repair of each permitted unit and its emission controls. Deficiencies or omissions in the Manual will be corrected within six months of notification from this Bureau. Unit and baghouse operators will be trained in the proper operation of their respective units. This manual will be updated as required to reflect changes in operations, equipment, etc.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CI  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CI There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CI Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CI The LMF shall not be operated with a defective delta section, with a damaged capture hood or with other disrepair that will significantly reduce the emission capture efficiency.

CI Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CI An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CI Main baghouse fans will be operated and maintained in such a manner as to deliver full operating efficiency. At least two fans will be on-line during normal plant operations. Should fan failure or other circumstances leave one fan on-line, operation of the EAF will be curtailed until two fans are on line. Procedures for minimizing fan down time will be prepared and included in the O&M Manual. Fan outages will be reported no later than the beginning of the next working day to the District Office following such events. Written notification of the incidence will include down times, items repaired, and other pertinent information

CI No roof or upper side openings in the melt shop will be permitted other than that detailed and approved prior to the permit issuance. No other openings may be placed without prior written approval from this Bureau. No siding shall be removed from the melt shop building without prior approval from this Bureau.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CI  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CI Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity. Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CI Particulate emissions from the main baghouse shall not exceed 0.0052 grs/DSCF and 22.29 lbs/hr. NO<sub>x</sub> emissions from this facility will not exceed 21.89 lbs/hr and 76.8 TPY. CO emissions from this facility will not exceed 603.2 lbs/hr and 2303.7 TPY.

CI Source tests for PM, NO<sub>x</sub>, CO and opacity will be conducted within 180 days of EAF (ID #CH) startup. ID #s CI-CO and other ancillary equipment needed for facility operation will be on-line and operating during these tests.

CI The source tests shall be conducted while the facility is operating under permitted conditions and at its expected maximum production rate. Areas of concern include, but are not limited to, collection device airflows and pressure drops, material throughputs, etc. Source tests conducted under any other conditions may result in production limitations.

CI Testing procedures on these units will follow requirements listed in 40CFR60.8 (Subparts A & AAa), S.C. Regulations 62.5, Standard #4, Section XIII.

CI Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CI Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel plant site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CI Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Permission is hereby granted to construct a four strand (7" square billet) Continuous Casting Machine. Yearly throughput is to be 840,000 billet tons. Emissions will be captured by a 30' x 30' canopy hood (60,000 ACFM) vented to the new main baghouse.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.

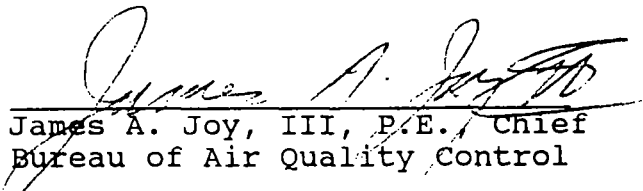
CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.
2. THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING UPON THE BEGINNING OF CONSTRUCTION AND THE STARTUP OF EACH PERMITTED FACILITY.
3. This construction permit shall expire one year from date issued, unless this agency has been notified.
4. An expired construction permit may be reactivated only upon the written request of the permittee, subject to all laws, regulations, and standards applicable at the time of reactivation.

(SEE PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

This is pursuant to the provisions of Section 48-1-110, 1976 Codes of South Carolina, as amended, and the South Carolina Air Quality Control Regulation 62.1, Section II.

CONSTRUCTION PERMIT NUMBER: 0820-0001-CJ  
PLANT LOCATION: U.S Hwy 52-401 North, Darlington (Dovesville)  
DATE OF ISSUE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CJ  
DATE OF ISSUE: April 19, 1993  
page 2

I. STANDARD CONDITIONS

- A. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section II, Paragraph C.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

<u>ID. No.</u>	<u>Pollutant</u>	<u>Emission Limitation</u>
CJ	PM	0.0052 grs/DSCF from the main baghouse (Method 5 or 5D)
CJ	Opacity	3%, from a control device (Method 9) 6%, from the EAF emissions exiting the melt shop (Method 9) 20%, from other operations' emissions exiting the melt shop (Method 9) 10%, from the dust handling system (Method 9)

The above emission limitations are based on operation at rated capacity. Operation at other than rated capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the Code of Federal Regulations (40CFR60 Appendix A) as in effect on the date of this permit issuance.

B. CONTINUOUS MONITORING REQUIREMENTS

ID No.	Pollutant
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N/A

C. ADDITIONAL CONDITIONS

CJ An Operations & Maintenance Manual will be prepared which specifies proper operation and repair of each permitted unit and its emission controls. Deficiencies or omissions in the Manual will be corrected within six months of notification from this Bureau. Unit and baghouse operators will be trained in the proper operation of their respective units. This manual will be updated as required to reflect changes in operations, equipment, etc.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CJ  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CJ There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CJ Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CJ Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CJ An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CJ Main baghouse fans will be operated and maintained in such a manner as to deliver full operating efficiency. At least two fans will be on-line during normal plant operations. Should fan failure or other circumstances leave one fan on-line, operation of the EAF will be curtailed until two fans are on line. Procedures for minimizing fan down time will be prepared and included in the O&M Manual. Fan outages will be reported no later than the beginning of the next working day to the District Office following such events. Written notification of the incidence will include down times, items repaired, and other pertinent information

CJ No roof or upper side openings in the melt shop will be permitted other than that detailed and approved prior to the permit issuance. No other openings may be placed without prior written approval from this Bureau. No siding shall be removed from the melt shop building without prior approval from this Bureau.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CJ  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CJ Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity. Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CJ Particulate emissions from the main baghouse shall not exceed 0.0052 grs/DSCF and 22.29 lbs/hr. NO<sub>x</sub> emissions from this facility will not exceed 21.89 lbs/hr and 76.8 TPY. CO emissions from this facility will not exceed 603.2 lbs/hr and 2303.7 TPY.

CJ Source tests for PM, NO<sub>x</sub>, CO and opacity will be conducted within 180 days of EAF (ID #CH) startup. ID #s CI-CO and other ancillary equipment needed for facility operation will be on-line and operating during these tests.

CJ The source tests shall be conducted while the facility is operating under permitted conditions and at its expected maximum production rate. Areas of concern include, but are not limited to, collection device airflows and pressure drops, material throughputs, etc. Source tests conducted under any other conditions may result in production limitations.

CJ Testing procedures on these units will follow requirements listed in 40CFR60.8 (Subparts A & AAa), S.C. Regulations 62.5, Standard #4, Section XIII.

CJ Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CJ Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel plant site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CJ Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.



OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Permission is hereby granted to construct a Tundish Preheat Station with two  $11 \times 10^6$  BTU/hr natural gas or propane heaters. Yearly melt shop throughput is to be 840,000 billet tons. Total natural gas use in Melt Shop #3 on ancillary equipment will be 460,000,000 cubic feet or the equivalent. Emissions will be vented mainly through the meltshop roof monitors.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.

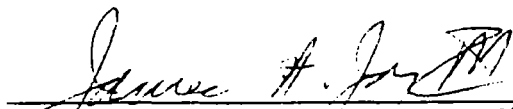
CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.
2. THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING UPON THE BEGINNING OF CONSTRUCTION AND THE STARTUP OF EACH PERMITTED FACILITY.
3. This construction permit shall expire one year from date issued, unless this agency has been notified.
4. An expired construction permit may be reactivated only upon the written request of the permittee, subject to all laws, regulations, and standards applicable at the time of reactivation.

(SEE PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

This is pursuant to the provisions of Section 48-1-110, 1976 Codes of South Carolina, as amended, and the South Carolina Air Quality Control Regulation 62.1, Section II.

CONSTRUCTION PERMIT NUMBER: 0820-0001-CK  
PLANT LOCATION: U.S Hwy 52-401 North, Darlington (Dovesville)  
DATE OF ISSUE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CK  
DATE OF ISSUE: April 19, 1993  
page 2

I. STANDARD CONDITIONS

- A. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section II, Paragraph C.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

<u>ID. No.</u>	<u>Pollutant</u>	<u>Emission Limitation</u>
CK	PM	0.0052 grs/DSCF from the main baghouse (Method 5 or 5D)
CK	Opacity	3%, from a control device (Method 9) 6%, from the EAF emissions exiting the melt shop (Method 9) 20%, from other operations' emissions exiting the melt shop (Method 9) 10%, from the dust handling system (Method 9)

The above emission limitations are based on operation at rated capacity. Operation at other than rated capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the Code of Federal Regulations (40CFR60 Appendix A) as in effect on the date of this permit issuance.

B. CONTINUOUS MONITORING REQUIREMENTS

ID No.	Pollutant
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N/A

C. ADDITIONAL CONDITIONS

CK An Operations & Maintenance Manual will be prepared which specifies proper operation and repair of each permitted unit and its emission controls. Deficiencies or omissions in the Manual will be corrected within six months of notification from this Bureau. Unit and baghouse operators will be trained in the proper operation of their respective units. This manual will be updated as required to reflect changes in operations, equipment, etc.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CK  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CK There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CK Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CK Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CK An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CK Main baghouse fans will be operated and maintained in such a manner as to deliver full operating efficiency. At least two fans will be on-line during normal plant operations. Should fan failure or other circumstances leave one fan on-line, operation of the EAF will be curtailed until two fans are on line. Procedures for minimizing fan down time will be prepared and included in the O&M Manual. Fan outages will be reported no later than the beginning of the next working day to the District Office following such events. Written notification of the incidence will include down times, items repaired, and other pertinent information

CK No roof or upper side openings in the melt shop will be permitted other than that detailed and approved prior to the permit issuance. No other openings may be placed without prior written approval from this Bureau. No siding shall be removed from the melt shop building without prior approval from this Bureau.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CK  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CK Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity. Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CK Particulate emissions from the main baghouse shall not exceed 0.0052 grs/DSCF and 22.29 lbs/hr. NO<sub>x</sub> emissions from this facility will not exceed 21.89 lbs/hr and 76.8 TPY. CO emissions from this facility will not exceed 603.2 lbs/hr and 2303.7 TPY.

CK Source tests for PM, NO<sub>x</sub>, CO and opacity will be conducted within 180 days of EAF (ID #CH) startup. ID #s CI-CO and other ancillary equipment needed for facility operation will be on-line and operating during these tests.

CK The source tests shall be conducted while the facility is operating under permitted conditions and at its expected maximum production rate. Areas of concern include, but are not limited to, collection device airflows and pressure drops, material throughputs, etc. Source tests conducted under any other conditions may result in production limitations.

CK Testing procedures on these units will follow requirements listed in 40CFR60.8 (Subparts A & AAa), S.C. Regulations 62.5, Standard #4, Section XIII.

CK Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CK Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel plant site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CK Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman  
Richard E. Jabbour, DDS, Vice Chairman  
Robert J. Stripling, Jr. Secretary

Promoting Health. Protecting the Environment

William E. Applegate, III,  
Toney Graham, Jr., MD  
Sandra J. Molander  
John B. Pate, MD

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

of South  
1

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

g:

ission is hereby granted to construct the LMF Lime and Alloys  
System which will pneumatically transfer the lime and alloys used  
F. The emissions from the four storage silos (3 lime, 1 carbon  
AF) will be controlled by two "bin vent" baghouses each rated at  
. The 8 alloy storage bins have no controls. The lime and alloys  
ntroduced to the ladles through a chute; the carbon will be sent  
s carbon storage tank.

Method 9)  
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ANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW,  
I, OR STANDARD MAY BE VIOLATED.


CONDITIONS

A. official correspondence, plans, permit application forms,  
and written statements are an integral part of this permit.  
THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE  
NOTIFIED IN WRITING UPON THE BEGINNING OF CONSTRUCTION AND THE  
STARTUP OF EACH PERMITTED FACILITY.  
This construction permit shall expire one year from date issued,  
unless this agency has been notified.  
An expired construction permit may be reactivated only upon the  
written request of the permittee, subject to all laws, regula-  
tions, and standards applicable at the time of reactivation.

PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

suant to the provisions of Section 48-1-110, 1976 Codes of South  
s amended, and the South Carolina Air Quality Control Regulation  
on II.

N PERMIT NUMBER: 0820-0001-CR  
ION: U.S Hwy 52-401 North, Darlington (Dovesville)  
UE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CR  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CR There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CR Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CR Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CR An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CR Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity (6% from the EAF). Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CR Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CR Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Permission is hereby granted to construct a Tundish Dryer Station with a  $11 \times 10^6$  BTU/hr natural gas or propane heater. Yearly melt shop throughput is to be 840,000 billet tons. Total natural gas use in Melt Shop #3 on ancillary equipment will be 460,000,000 cubic feet or the equivalent. Emissions will be vented mainly through the melt shop roof monitors.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.

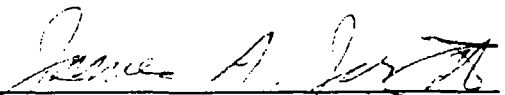
CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.
2. THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING UPON THE BEGINNING OF CONSTRUCTION AND THE STARTUP OF EACH PERMITTED FACILITY.
3. This construction permit shall expire one year from date issued, unless this agency has been notified.
4. An expired construction permit may be reactivated only upon the written request of the permittee, subject to all laws, regulations, and standards applicable at the time of reactivation.

(SEE PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

This is pursuant to the provisions of Section 48-1-110, 1976 Codes of South Carolina, as amended, and the South Carolina Air Quality Control Regulation 62.1, Section II.

CONSTRUCTION PERMIT NUMBER: 0820-0001-CL  
PLANT LOCATION: U.S Hwy 52-401 North, Darlington (Dovesville)  
DATE OF ISSUE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CL  
DATE OF ISSUE: April 19, 1993  
page 2

I. STANDARD CONDITIONS

- A. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section II, Paragraph C.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

<u>ID. No.</u>	<u>Pollutant</u>	<u>Emission Limitation</u>
CL	PM	0.0052 grs/DSCF from the main baghouse (Method 5 or 5D)
CL	Opacity	3%, from a control device (Method 9) 6%, from the EAF emissions exiting the melt shop (Method 9) 20%, from other operations' emissions exiting the melt shop (Method 9) 10%, from the dust handling system (Method 9)

The above emission limitations are based on operation at rated capacity. Operation at other than rated capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the Code of Federal Regulations (40CFR60 Appendix A) as in effect on the date of this permit issuance.

B. CONTINUOUS MONITORING REQUIREMENTS

ID No.	Pollutant
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N/A

C. ADDITIONAL CONDITIONS

CL An Operations & Maintenance Manual will be prepared which specifies proper operation and repair of each permitted unit and its emission controls. Deficiencies or omissions in the Manual will be corrected within six months of notification from this Bureau. Unit and baghouse operators will be trained in the proper operation of their respective units. This manual will be updated as required to reflect changes in operations, equipment, etc.



Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CL  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CL There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CL Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CL Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CL An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CL Main baghouse fans will be operated and maintained in such a manner as to deliver full operating efficiency. At least two fans will be on-line during normal plant operations. Should fan failure or other circumstances leave one fan on-line, operation of the EAF will be curtailed until two fans are on line. Procedures for minimizing fan down time will be prepared and included in the O&M Manual. Fan outages will be reported no later than the beginning of the next working day to the District Office following such events. Written notification of the incidence will include down times, items repaired, and other pertinent information

CL No roof or upper side openings in the melt shop will be permitted other than that detailed and approved prior to the permit issuance. No other openings may be placed without prior written approval from this Bureau. No siding shall be removed from the melt shop building without prior approval from this Bureau.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CL  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CL Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity. Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CL Particulate emissions from the main baghouse shall not exceed 0.0052 grs/DSCF and 22.29 lbs/hr. NO<sub>x</sub> emissions from this facility will not exceed 21.89 lbs/hr<sup>x</sup> and 76.8 TPY. CO emissions from this facility will not exceed 603.2 lbs/hr and 2303.7 TPY.

CL Source tests for PM, NO<sub>x</sub>, CO and opacity will be conducted within 180 days of EAF (ID #CH) startup. ID #s CI-CO and other ancillary equipment needed for facility operation will be on-line and operating during these tests.

CL The source tests shall be conducted while the facility is operating under permitted conditions and at its expected maximum production rate. Areas of concern include, but are not limited to, collection device airflows and pressure drops, material throughputs, etc. Source tests conducted under any other conditions may result in production limitations.

CL Testing procedures on these units will follow requirements listed in 40CFR60.8 (Subparts A & AAa), S.C. Regulations 62.5, Standard #4, Section XIII.

CL Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CL Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel plant site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CL Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Permission is hereby granted to construct a Ladle Dryout Station with a  $11 \times 10^6$  BTU/hr natural gas or propane heater. Yearly melt shop throughput is to be 840,000 billet tons. Total natural gas use in Melt Shop #3 on ancillary equipment will be 400,000,000 cubic feet or the equivalent. Emissions will be vented mainly through the meltshop roof monitors.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.

CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.
2. THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING UPON THE BEGINNING OF CONSTRUCTION AND THE STARTUP OF EACH PERMITTED FACILITY.
3. This construction permit shall expire one year from date issued, unless this agency has been notified.
4. An expired construction permit may be reactivated only upon the written request of the permittee, subject to all laws, regulations, and standards applicable at the time of reactivation.

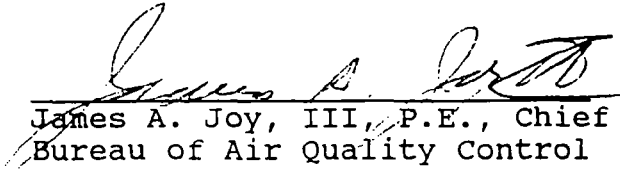
(SEE PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

This is pursuant to the provisions of Section 48-1-110, 1976 Codes of South Carolina, as amended, and the South Carolina Air Quality Control Regulation 62.1, Section II.

CONSTRUCTION PERMIT NUMBER: 0820-0001-CM

PLANT LOCATION: U.S Hwy 52-401 North, Darlington (Dovesville)

DATE OF ISSUE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CM  
DATE OF ISSUE: April 19, 1993  
page 2

I. STANDARD CONDITIONS

- A. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section II, Paragraph C.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

<u>ID. No.</u>	<u>Pollutant</u>	<u>Emission Limitation</u>
CM	PM	0.0052 grs/DSCF from the main baghouse (Method 5 or 5D)
CM	Opacity	3%, from a control device Method 9) 6%, from the EAF emissions exiting the melt shop (Method 9) 20%, from other operations' emissions exiting the melt shop (Method 9) 10%, from the dust handling system (Method 9)

The above emission limitations are based on operation at rated capacity. Operation at other than rated capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the Code of Federal Regulations (40CFR60 Appendix A) as in effect on the date of this permit issuance.

B. CONTINUOUS MONITORING REQUIREMENTS

ID No.	Pollutant
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N/A

C. ADDITIONAL CONDITIONS

CM An Operations & Maintenance Manual will be prepared which specifies proper operation and repair of each permitted unit and its emission controls. Deficiencies or omissions in the Manual will be corrected within six months of notification from this Bureau. Unit and baghouse operators will be trained in the proper operation of their respective units. This manual will be updated as required to reflect changes in operations, equipment, etc.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CM  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CM There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CM Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CM Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CM An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CM Main baghouse fans will be operated and maintained in such a manner as to deliver full operating efficiency. At least two fans will be on-line during normal plant operations. Should fan failure or other circumstances leave one fan on-line, operation of the EAF will be curtailed until two fans are on line. Procedures for minimizing fan down time will be prepared and included in the O&M Manual. Fan outages will be reported no later than the beginning of the next working day to the District Office following such events. Written notification of the incidence will include down times, items repaired, and other pertinent information

CM No roof or upper side openings in the melt shop will be permitted other than that detailed and approved prior to the permit issuance. No other openings may be placed without prior written approval from this Bureau. No siding shall be removed from the melt shop building without prior approval from this Bureau.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CM  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CM Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity. Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CM Particulate emissions from the main baghouse shall not exceed 0.0052 grs/DSCF and 22.29 lbs/hr. NO<sub>x</sub> emissions from this facility will not exceed 21.89 lbs/hr and 76.8 TPY. CO emissions from this facility will not exceed 603.2 lbs/hr and 2303.7 TPY.

CM Source tests for PM, NO<sub>x</sub>, CO and opacity will be conducted within 180 days of EAF (ID #CH) startup. ID #s CI-CO and other ancillary equipment needed for facility operation will be on-line and operating during these tests.

CM The source tests shall be conducted while the facility is operating under permitted conditions and at its expected maximum production rate. Areas of concern include, but are not limited to, collection device airflows and pressure drops, material throughputs, etc. Source tests conducted under any other conditions may result in production limitations.

CM Testing procedures on these units will follow requirements listed in 40CFR60.8 (Subparts A & AAa), S.C. Regulations 62.5, Standard #4, Section XIII.

CM Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CM Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel plant site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CM Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman  
Richard E. Jabbour, DDS, Vice Chairman  
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,  
Toney Graham, Jr., MD  
Sandra J. Molander  
John B. Pate, MD

Promoting Health. Protecting the Environment

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

ns of South  
trol

ion is hereby granted to construct a Ladle Preheat Station with  
BTU/hr natural gas or propane heaters. Yearly melt shop  
to be 840,000 billet tons. Total natural gas use in Melt  
illary equipment will be 460,000,000 cubic feet or the  
Emissions will be vented mainly through the melt shop roof

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NG ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW,  
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CONDITIONS

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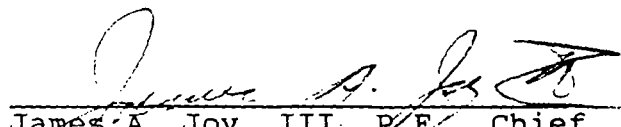
icial correspondence, plans, permit application forms,  
written statements are an integral part of this permit.  
DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE  
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construction permit shall expire one year from date issued,  
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s, and standards applicable at the time of reactivation.

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E 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

nt to the provisions of Section 48-1-110, 1976 Codes of South  
mended, and the South Carolina Air Quality Control Regulation  
II.

ERMIT NUMBER: 0820-0001-CN  
: U.S Hwy 52-401 North, Darlington (Dovesville)  
April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

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Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CN  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CN There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CN Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CN Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CN An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CN Main baghouse fans will be operated and maintained in such a manner as to deliver full operating efficiency. At least two fans will be on-line during normal plant operations. Should fan failure or other circumstances leave one fan on-line, operation of the EAF will be curtailed until two fans are on line. Procedures for minimizing fan down time will be prepared and included in the O&M Manual. Fan outages will be reported no later than the beginning of the next working day to the District Office following such events. Written notification of the incidence will include down times, items repaired, and other pertinent information

CN No roof or upper side openings in the melt shop will be permitted other than that detailed and approved prior to the permit issuance. No other openings may be placed without prior written approval from this Bureau. No siding shall be removed from the melt shop building without prior approval from this Bureau.



Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CN  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CN Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity. Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CN Particulate emissions from the main baghouse shall not exceed 0.0052 grs/DSCF and 22.29 lbs/hr. NO<sub>x</sub> emissions from this facility will not exceed 21.89 lbs/hr and 76.8 TPY. CO emissions from this facility will not exceed 603.2 lbs/hr and 2303.7 TPY.

CN Source tests for PM, NO<sub>x</sub>, CO and opacity will be conducted within 180 days of EAF (ID #CH) startup. ID #s CI-CO and other ancillary equipment needed for facility operation will be on-line and operating during these tests.

CN The source tests shall be conducted while the facility is operating under permitted conditions and at its expected maximum production rate. Areas of concern include, but are not limited to, collection device airflows and pressure drops, material throughputs, etc. Source tests conducted under any other conditions may result in production limitations.

CN Testing procedures on these units will follow requirements listed in 40CFR60.8 (Subparts A & AAa), S.C. Regulations 62.5, Standard #4, Section XIII.

CN Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CN Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel plant site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CN Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman  
Richard E. Jabbour, DDS, Vice Chairman  
Robert J. Stripling, Jr. Secretary

Promoting Health. Protecting the Environment

William E. Applegate, III.  
Toney Graham, Jr., MD  
Sandra J. Molander  
John B. Pate, MD

1-CQ

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

hereby granted to construct a EAF Lime and Alloys  
ch will pneumatically transfer the lime and alloys used  
e and alloys will be added at the "Consteel" conveyor).  
the four storage silos (2 lime, 2 for other flux) will  
o "bin vent" baghouses each rated at 1200 ACFM.

OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW,  
DARD MAY BE VIOLATED.


CONDITIONS

al correspondence, plans, permit application forms,  
n statements are an integral part of this permit.  
O F THE ENGINEERING SERVICES DIVISION MUST BE  
N WRITING UPON THE BEGINNING OF CONSTRUCTION AND THE  
EACH PERMITTED FACILITY.  
uction permit shall expire one year from date issued,  
s agency has been notified.  
construction permit may be reactivated only upon the  
quest of the permittee, subject to all laws, regula-  
standards applicable at the time of reactivation.

THIS PERMIT FOR ADDITIONAL CONDITIONS)

the provisions of Section 48-1-110, 1976 Codes of South  
and the South Carolina Air Quality Control Regulation

NUMBER: 0820-0001-CQ  
wy 52-401 North, Darlington (Dovesville)  
19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

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e following:

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Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CQ  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CQ There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CQ Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CQ Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CQ An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CQ Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity (6% from the EAF). Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CQ Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CQ Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Permission is hereby granted to construct a main baghouse dust handling system for Melt Shop #3. This system is considered to include the main baghouse dust hoppers and all associated dust handling equipment including the storage silo and loading operation. Emissions from the storage silo will be controlled by a "bin vent" fabric filter. This system is associated with the new EAF and is thereby subject to NSPS Subpart AAa.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.

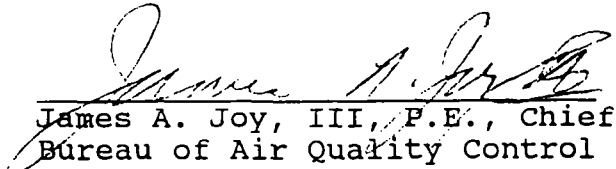
CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.
2. THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING OF THE DATE CONSTRUCTION BEGAN NO LATER THAN 30 DAYS AFTER SUCH DATE, THE ANTICIPATED DATE OF START-UP 30-60 DAYS PRIOR TO SUCH DATE AND THE ACTUAL DATE OF START-UP WITHIN 15 DAYS AFTER SUCH DATE OF EACH PERMITTED FACILITY.
3. This construction permit shall expire one year from date issued, unless this agency has been notified.
4. An expired construction permit may be reactivated only upon the written request of the permittee, subject to all laws, regulations, and standards applicable at the time of reactivation.

(SEE PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

This is pursuant to the provisions of Section 48-1-110, 1976 Codes of South Carolina, as amended, and the South Carolina Air Quality Control Regulation 62.1, Section II and the Code of Federal Regulations, Title 40, Part 60, Subpart A.

CONSTRUCTION PERMIT NUMBER: 0820-0001-CP  
PLANT LOCATION: U.S Hwy 52-401 North, Darlington (Dovesville)  
DATE OF ISSUE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CP  
DATE OF ISSUE: April 19, 1993  
page 2

I. Standard Conditions

- A. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section II, Paragraph C and 40CFR60 Subpart A.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

<u>ID. No.</u>	<u>Pollutant</u>	<u>Emission Limitation</u>
CP	PM	<0.5 lbs/hr (Method 5)
CG	Opacity	10%, from the dust handling system (Method 9)

The above emission limitations are based on operation at rated capacity. Operation at other than rated capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the Code of Federal Regulations (40CFR60 Appendix A).

B. CONTINUOUS MONITORING REQUIREMENTS

<u>ID. No.</u>	<u>Pollutant</u>
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N/A

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CP  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CP An Operations & Maintenance Manual will be prepared which specifies proper operation and repair of each permitted unit and its emission controls. Deficiencies or omissions in the Manual will be corrected within six months of notification from this Bureau. Unit and baghouse operators will be trained in the proper operation of their respective units. This manual will be updated as required to reflect changes in operations, equipment, etc.

CP There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CP Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CP Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CP An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CP Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CP The EAF in this facility is subject to 40CFR60 subparts A & AAa. The requirements for reporting, testing, instrumentation, etc., will be completed as described in these subparts.

CP A protocol for the monitoring of emissions and operations as required by 40CFR60.273a and 40CFR60.274a, subpart AAa will be developed and submitted to this Bureau for approval before startup. Any deviation from the approved protocol must have prior written approval from this Bureau.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CP  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CP Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CP Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
BUREAU OF AIR QUALITY CONTROL  
CONSTRUCTION PERMIT

Nucor Steel Corp.  
P.O. Box 525  
Darlington, South Carolina 29532

Permission is hereby granted to construct a Vertical Holding Station with a  $11 \times 10^6$  BTU/hr natural gas or propane heater. Yearly melt shop throughput is to be 840,000 billet tons. Total natural gas use in Melt Shop #3 on ancillary equipment will be 460,000,000 cubic feet or the equivalent. Emissions will be vented mainly through the melt shop roof monitors.

NOTWITHSTANDING ANY OF THE CONDITIONS LISTED BELOW, NO APPLICABLE LAW, REGULATION, OR STANDARD MAY BE VIOLATED.


CONDITIONS

1. All official correspondence, plans, permit application forms, and written statements are an integral part of this permit.
2. THE DIRECTOR OF THE ENGINEERING SERVICES DIVISION MUST BE NOTIFIED IN WRITING UPON THE BEGINNING OF CONSTRUCTION AND THE STARTUP OF EACH PERMITTED FACILITY.
3. This construction permit shall expire one year from date issued, unless this agency has been notified.
4. An expired construction permit may be reactivated only upon the written request of the permittee, subject to all laws, regulations, and standards applicable at the time of reactivation.

(SEE PAGE 2 OF THIS PERMIT FOR ADDITIONAL CONDITIONS)

This is pursuant to the provisions of Section 48-1-110, 1976 Codes of South Carolina, as amended, and the South Carolina Air Quality Control Regulation 62.1, Section II.

CONSTRUCTION PERMIT NUMBER: 0820-0001-CO  
PLANT LOCATION: U.S Hwy 52-401 North, Darlington (Dovesville)  
DATE OF ISSUE: April 19, 1993

  
James A. Joy, III, P.E., Chief  
Bureau of Air Quality Control



Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CO  
DATE OF ISSUE: April 19, 1993  
page 2

I. STANDARD CONDITIONS

- A. This permit expressly incorporates all the provisions of South Carolina Department of Health and Environmental Control Regulation 61-62.1, Section II, Paragraph C.

II. SPECIAL CONDITIONS

A. EMISSION LIMITATIONS

Air pollutant emissions shall not exceed the following:

<u>ID. No.</u>	<u>Pollutant</u>	<u>Emission Limitation</u>
CO	PM	0.0052 grs/DSCF from the main baghouse (Method 5 or 5D)
CO	Opacity	3%, from a control device Method 9) 6%, from the EAF emissions exiting the melt shop (Method 9) 20%, from other operations' emissions exiting the melt shop (Method 9) 10%, from the dust handling system (Method 9)

The above emission limitations are based on operation at rated capacity. Operation at other than rated capacity must meet emission limits specified in the applicable regulations based on that operating rate. All test methods must be the most recent revisions that are published in the Code of Federal Regulations (40CFR60 Appendix A) as in effect on the date of this permit issuance.

B. CONTINUOUS MONITORING REQUIREMENTS

ID No.	Pollutant
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N/A

C. ADDITIONAL CONDITIONS

CO An Operations & Maintenance Manual will be prepared which specifies proper operation and repair of each permitted unit and its emission controls. Deficiencies or omissions in the Manual will be corrected within six months of notification from this Bureau. Unit and baghouse operators will be trained in the proper operation of their respective units. This manual will be updated as required to reflect changes in operations, equipment, etc.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CO  
DATE OF ISSUE: April 19, 1993  
page 3

C. ADDITIONAL CONDITIONS

CO There will be one person (or staff position) designated to be responsible for environmental matters during each shift. This person (or position) will be the contact with the Bureau and the Pee Dee District EQC Office when any complaint, plant malfunction, etc. has occurred. This procedure will be included in the O&M manual.

CO Quarterly reports listing those months' billet production weight, dust capture weight in main baghouse, total hours of EAF operation and melt shop fuel use must be submitted to the Pee Dee District EQC Office within 15 days of that quarter's end. This report will also include a 12 month rolling average for billet production and melt shop fuel use.

CO Ruptured or inoperative bags (main, dust handling, and lime system baghouses) will be replaced promptly. No more than two main baghouse compartments will be off line without curtailment of melt shop operations.

CO An inventory of spare bags for the main baghouse (the equivalent of at least one compartment) will be maintained. A suitable number of spare bags for the smaller baghouses will be maintained. These numbers will be included in the O&M Manual.

CO Main baghouse fans will be operated and maintained in such a manner as to deliver full operating efficiency. At least two fans will be on-line during normal plant operations. Should fan failure or other circumstances leave one fan on-line, operation of the EAF will be curtailed until two fans are on line. Procedures for minimizing fan down time will be prepared and included in the O&M Manual. Fan outages will be reported no later than the beginning of the next working day to the District Office following such events. Written notification of the incidence will include down times, items repaired, and other pertinent information

CO No roof or upper side openings in the melt shop will be permitted other than that detailed and approved prior to the permit issuance. No other openings may be placed without prior written approval from this Bureau. No siding shall be removed from the melt shop building without prior approval from this Bureau.

Nucor Steel Corp.  
CONDITIONS FOR PERMIT NUMBER: 0820-0001-CO  
DATE OF ISSUE: April 19, 1993  
page 4

C. ADDITIONAL CONDITIONS

CO Visible emissions from the ridge vent or any other opening in the melt shop building shall not exceed 20% opacity. Readings may be taken from the same or different location(s) on succeeding readings in determining compliance with the above opacity limitation.

CO Particulate emissions from the main baghouse shall not exceed 0.0052 grs/DSCF and 22.29 lbs/hr. NO<sub>x</sub> emissions from this facility will not exceed 21.89 lbs/hr and 76.8 TPY. CO emissions from this facility will not exceed 603.2 lbs/hr and 2303.7 TPY.

CO Source tests for PM, NO<sub>x</sub>, CO and opacity will be conducted within 180 days of EAF (ID #CH) startup. ID #s CI-CO and other ancillary equipment needed for facility operation will be on-line and operating during these tests.

CO The source tests shall be conducted while the facility is operating under permitted conditions and at its expected maximum production rate. Areas of concern include, but are not limited to, collection device airflows and pressure drops, material throughputs, etc. Source tests conducted under any other conditions may result in production limitations.

CO Testing procedures on these units will follow requirements listed in 40CFR60.8 (Subparts A & AAa), S.C. Regulations 62.5, Standard #4, Section XIII.

CO Module pressure drop gages and cleaning-cycle timers shall be installed, operated and maintained on the baghouses.

CO Dust collected in the main baghouse will be kept enclosed until it is removed from the Nucor Steel plant site. Fugitive or point emissions shall not exceed 10% opacity from any dust handling equipment or processing.

CO Yearly melt shop billet production will be limited to 840,000 tons per year. Natural gas (and propane) use in the melt shop will not exceed the equivalent of 460,000,000 cubic feet @ 1000 BTU/cu ft.

MEMORANDUM

TO: Jonathan McInnis  
Site Screening Section  
Division of Site Engineering and Screening  
Bureau of Solid and Hazardous Waste Management

FROM: Marion Feagin, Hydrologist  
Superfund and Solid Waste Section  
Division of Hydrogeology  
Bureau of Solid and Hazardous Waste Management

DATE: August 23, 1993

RE: Nucor Steel  
SCD 044 940 369  
Darlington County  
Site Inspection - Hydrogeologic Review

A hydrogeologic review of the referenced site has been conducted to assist in completing a site inspection for the Superfund program. The purpose of the hydrogeologic review is to provide information regarding the groundwater migration route of potential contaminants. It includes information obtained from South Carolina Water Resources Commission (SCWRC) well tabulations, United States Geological Survey (USGS) topographic quadrangles, United States Department of Agriculture (USDA) soil surveys, site specific information from the South Carolina Department of Health and Environmental Control (SCDHEC) files, and a geologic/hydrogeologic literature review.

According to Curley (1990), Newcome (1989), and a report entitled Groundwater Assessment Report, Nucor Steel (General Engineering Laboratories) dated October 1991, the following geologic units underlie the site:

<u>Name</u>	<u>Description</u>	<u>Estimated Hydraulic Conductivity</u>	<u>Estimated Depth of Occurrence</u>
Terrace Deposits	Sand, silty sand, and sandy clay	$10^{-4}$ cm/sec	0 - 30 ft.

<u>Name</u>	<u>Description</u>	<u>Estimated Hydraulic Conductivity</u>	<u>Estimated Depth of Occurrence</u>
Black Creek Formation	Sand inter-bedded with silt, clay and sandstone	$10^{-4}$ cm/sec	30 - 125 ft.
Middendorf Formation	Sand inter-bedded with clay	$10^{-4}$ cm/sec	125 - 350 ft.

The aquifers of concern, which act as a single hydrologic unit, are located within the Terrace Deposits and the Black Creek Formation. Regional hydrogeologic data indicates that in the vicinity of the Nucor Steel facility the Black Creek Formation overlies a confining unit that likely restricts the downward vertical migration of groundwater into the Middendorf Aquifer. The referenced facility is not in an area of karst topography.

Water levels in on-site wells indicate the depth to groundwater across the site is between 1 and 25 feet. The predominant shallow groundwater flow direction appears to be to the northeast towards the Black Creek. However, water-level data from monitoring well MW-1 indicates that shallow groundwater beneath the southwestern portion of the site may be flowing to the southwest towards Lucas Creek.

A well inventory within the four-mile site radius indicates the following uses of groundwater from the aquifers of concern: industrial, livestock, domestic and public water supply.

The majority of the on-site surface soils (0-2 ft.) are classified as Huckabee sand and loamy sand, Lakeland sand, and Okene loam exhibiting a moderate to high infiltration rate.

cc: Pee Dee District

References Cited:

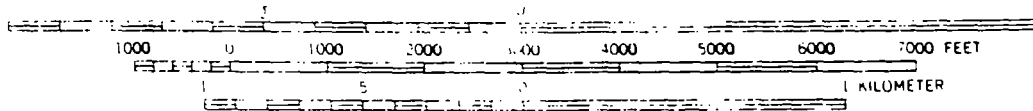
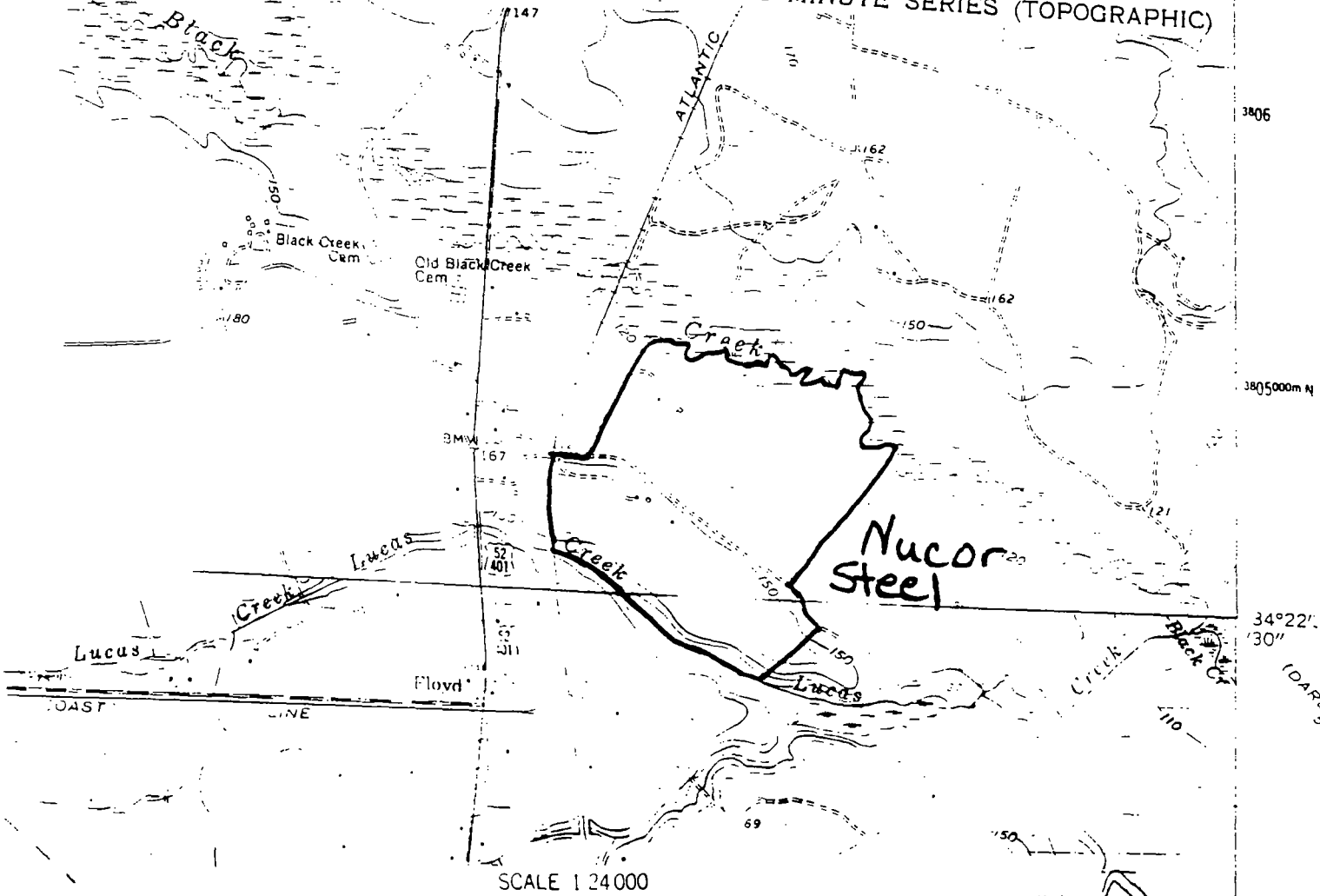
Curley, Robert E., 1990, Groundwater in the Pee Dee Region of South Carolina, SCWRC Open File Report #36.

General Engineering Laboratories, October 1991, Groundwater Assessment Report, Nucor Steel, Darlington, South Carolina.

Newcome, Roy, 1989, Groundwater Resources of South Carolina's Coastal Plain, SCWRC Report #167.

Nucor Steel  
SCD044940369  
Darlington County

DOVESVILLE QUADRANGLE  
SOUTH CAROLINA  
7.5 MINUTE SERIES (TOPOGRAPHIC)



CONTOUR INTERVAL 10 FEET

DARLINGTON WEST QUADRANGLE  
SOUTH CAROLINA-DARLINGTON CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY:	Dixie Cup Co.	COUNTY:		AQUIFER:		SCWRC:	17L--z01
CONTACT:	PHONE:	LONGITUDE:	79-52-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-17-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Connolly;			LOCATION:	Darlington		
COMPANY:	Hartsville Oil Mill	COUNTY:		AQUIFER:		SCWRC:	19K--z01
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab;			LOCATION:	Hartsville		
COMPANY:	Hartsville Oil Mill	COUNTY:		AQUIFER:		SCWRC:	19K--z02
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab;			LOCATION:			
COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z03
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z04
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z05
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	



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S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z06
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z07
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	Sonoco Crop.	COUNTY:		AQUIFER:		SCWRC:	19K--z08
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	City of Hartsville	COUNTY:		AQUIFER:		SCWRC:	19K--z09
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	175.00		
REMARKS:	SCWRC Well tab; DC:Layne-Atlantic; T=64;			LOCATION:			
COMPANY:	City of Hartsville	COUNTY:		AQUIFER:		SCWRC:	19K--z11
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	175.00		

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S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

REMARKS:	SCWRC Well tab;	DC:Layne-Atlantic;	T=64;	LOCATION:	
COMPANY:	Carolina Utilities	COUNTY:		AQUIFER:	SCWRC: 17L--z02
CONTACT:	PHONE:	LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-17-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; WS; PT:28;	LOCATION:	Darlington		
COMPANY:	Carolina Utilities	COUNTY:		AQUIFER:	SCWRC: 17L--z03
CONTACT:	PHONE:	LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-17-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; DC:Hughes Wells;	30ft cavity rept...;	LOCATION:	Darlington	
COMPANY:	Darlington Bank &	COUNTY:		AQUIFER:	SCWRC: 17L--z04
CONTACT:	PHONE:	LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-17-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; Flows of 10 gpm;	LOCATION:	Trust Co.		
COMPANY:	Mr. L.G. O'Neal	COUNTY:		AQUIFER:	SCWRC: 19K--z12
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; DC:B. Moore;	LOCATION:	.6 mi. NE Hartsville		
COMPANY:	Ernest L. Jordan	COUNTY:		AQUIFER:	SCWRC: 18K--z01
CONTACT:	PHONE:	LONGITUDE:	79-57-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; DC:Jess Spiers;	T=65; Flows;	LOCATION:	2.5 mi. W Boveville	

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S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY:	City of Hartsville	COUNTY:		AQUIFER:		SCWRC:	19K--z13
CONTACT:		PHONE:		LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;	DC:Layne-Atlantic;	Test Well;	LOCATION:			

COMPANY:	Darlington Mfg. Co.	COUNTY:		AQUIFER:		SCWRC:	17L--z05
CONTACT:		PHONE:		LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-17-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;			LOCATION:			

COMPANY:	Nucor Steel	COUNTY:		AQUIFER:		SCWRC:	17K--z01
CONTACT:		PHONE:		LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;	USGS Well files;	DHEC;	LOCATION:	Darlington		

COMPANY:	Nucor Steel	COUNTY:		AQUIFER:		SCWRC:	17K--z02
CONTACT:		PHONE:		LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	DHEC;			LOCATION:	Darlington		

COMPANY:	Hartsville Well Fld	COUNTY:		AQUIFER:		SCWRC:	19K--z14
CONTACT:		PHONE:		LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;	USGS Obs. Well;	T:18Flowing;	LOCATION:	#2		

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S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

CONTACT:	PHONE:	LONGITUDE:	79-54-22	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-20-52	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	1.79 MILES SSW	ELEV:	170.00		
REMARKS:	DHEC;		LOCATION:	Darlington			

COMPANY:	Magnolia Trailer Pk.	COUNTY:		AQUIFER:		SCWRC:	17L--g01
CONTACT:	PHONE:	LONGITUDE:	79-53-91	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-18-91	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	DHEC;		LOCATION:				

COMPANY:	Magnolia Trailer Pk.	COUNTY:		AQUIFER:		SCWRC:	17L--g02
CONTACT:	PHONE:	LONGITUDE:	79-53-91	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-18-91	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	DHEC;		LOCATION:				

COMPANY:	Yardborough Trailer	COUNTY:		AQUIFER:		SCWRC:	17L--d01
CONTACT:	PHONE:	LONGITUDE:	79-53-26	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-19-19	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	3.48 MILES SSE	ELEV:	160.00		
REMARKS:	DHEC;		LOCATION:	Park			

COMPANY:	Swink's Trailer Park	COUNTY:		AQUIFER:		SCWRC:	17L--d02
CONTACT:	PHONE:	LONGITUDE:	79-53-31	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-19-50	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	2.88 MILES SSE	ELEV:	62.00		
REMARKS:	DHEC;		LOCATION:	Darlington			

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S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

REMARKS: DHEC; DISTANCE: 1.42 MILES SSW ELEV: 172.00  
LOCATION: Park, Dovesville Hwy

COMPANY: Landfill site COUNTY: AQUIFER: SCWRC: 18K--s01  
CONTACT: PHONE: LONGITUDE: 79-56-00 COMP. DEPTH: 0 USE:  
ADDRESS: LATITUDE: 34-21-50 DRILL DEPTH: 0 YIELD: 0  
REMARKS: DHEC; DISTANCE: 2.22 MILES WSW ELEV: 181.00  
LOCATION: Darlington

COMPANY: W.W. Kirven COUNTY: AQUIFER: SCWRC: 18K--k01  
CONTACT: PHONE: LONGITUDE: 79-50-50 COMP. DEPTH: 50 USE: IR  
ADDRESS: LATITUDE: 34-22-30 DRILL DEPTH: -1 YIELD: 100  
REMARKS: Casing 0-40; Screen 40-50. DISTANCE: 2.79 MILES ENE ELEV: -1.00  
LOCATION: W.W. Kirven

COMPANY: Dar. Co. Dev. W&S A. COUNTY: AQUIFER: SCWRC: 17K--f01  
CONTACT: PHONE: LONGITUDE: 79-54-05 COMP. DEPTH: 480 USE:  
ADDRESS: LATITUDE: 34-23-41 DRILL DEPTH: 360 YIELD: -1  
REMARKS: Dovesville, , SC DISTANCE: 1.58 MILES NNW ELEV: 160.00  
LOCATION: Dovesville

COMPANY: Perfection Gear Co. COUNTY: AQUIFER: SCWRC: 17K--p01  
CONTACT: PHONE: LONGITUDE: 79-54-12 COMP. DEPTH: 280 USE: IN  
ADDRESS: LATITUDE: 34-23-31 DRILL DEPTH: 476 YIELD: -1  
REMARKS: Darlington, , SC DISTANCE: 1.43 MILES NNW ELEV: 170.00  
LOCATION: Darlington

COMPANY: Bethea Baptist Home COUNTY: AQUIFER: SCWRC: 17L--u01  
CONTACT: PHONE: LONGITUDE: 79-50-91 COMP. DEPTH: 331 USE:  
ADDRESS: LATITUDE: 34-17-95 DRILL DEPTH: 300 YIELD: -1  
ELEV: 138.00

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S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY:	Mrs. J.B. Colbert	COUNTY:		AQUIFER:		SCWRC:	18K--h01		
CONTACT:		PHONE:		LONGITUDE:	79-57-23	COMP. DEPTH:	225	USE:	DO
ADDRESS:	Auburndale Farms			LATITUDE:	34-23-37	DRILL DEPTH:	290	YIELD:	50
	Hartsville, , SC			DISTANCE:	3.77 MILES WNW	ELEV:	155.00		
REMARKS:	Date completed was 1954.			LOCATION: Hartsville					

COMPANY:	W.W. Kirven	COUNTY:		AQUIFER:		SCWRC:	17K--k01		
CONTACT:		PHONE:		LONGITUDE:	79-50-50	COMP. DEPTH:	50	USE:	IR
ADDRESS:				LATITUDE:	34-22-30	DRILL DEPTH:	-1	YIELD:	100
				DISTANCE:	2.79 MILES ENE	ELEV:	-1.00		
REMARKS:	Casing 0-40; Screen 40-50.			LOCATION: W.W. Kirven					

COMPANY:	WILLIAM F HUDSON	COUNTY:		AQUIFER:		SCWRC:	17L--e01		
CONTACT:	W.F. HUDSON	PHONE:	393-7748	LONGITUDE:	79-54-33	COMP. DEPTH:	39	USE:	IR
ADDRESS:	RT 5 BOX 24			LATITUDE:	34-19-12	DRILL DEPTH:	-1	YIELD:	15
	DARLINGTON , SC		29532	DISTANCE:	3.68 MILES SSW	ELEV:	171.00		
REMARKS:				LOCATION: 1.3M FROM HWY 52 N ON GILCHRIS					

COMPANY:	Kirven Farm	COUNTY:	Darlington	AQUIFER:		SCWRC:	16IR07G01		
CONTACT:		PHONE:		LONGITUDE:	79-50-50	COMP. DEPTH:	0	USE:	
ADDRESS:	Rt. 5, Box 110			LATITUDE:	34-22-30	DRILL DEPTH:	0	YIELD:	0
	Darlington , SC		29532	DISTANCE:	2.79 MILES ENE	ELEV:	0.00		
REMARKS:				LOCATION:					

COMPANY:	Kirven Farm	COUNTY:	Darlington	AQUIFER:		SCWRC:	16IR07G02		
CONTACT:		PHONE:		LONGITUDE:	79-50-50	COMP. DEPTH:	0	USE:	
ADDRESS:	Rt. 5, Box 110			LATITUDE:	34-22-30	DRILL DEPTH:	0	YIELD:	0
	Darlington , SC		29532	DISTANCE:	2.79 MILES ENE	ELEV:	0.00		
REMARKS:				LOCATION:					

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S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES

THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY:	Law Farm	COUNTY:	Darlington	AQUIFER:		SCWRC:	16IR24G01		
CONTACT:		PHONE:		LONGITUDE:	79-55-40	COMP. DEPTH:	0	USE:	
ADDRESS:	Rt. 6, Box 207			LATITUDE:	34-19-20	DRILL DEPTH:	0	YIELD:	0
	Darlington , SC	29532		DISTANCE:	3.90 MILES SSW	ELEV:	0.00		
REMARKS:				LOCATION:					

COMPANY:	City of Darlington	COUNTY:	Darlington	AQUIFER:		SCWRC:	16WS02G01		
CONTACT:		PHONE:		LONGITUDE:	79-54-12	COMP. DEPTH:	0	USE:	
ADDRESS:	Post Office Box 629			LATITUDE:	34-21-01	DRILL DEPTH:	0	YIELD:	0
	Darlington , SC	29532		DISTANCE:	1.57 MILES SSW	ELEV:	0.00		
REMARKS:				LOCATION:					

Date: 02/11/93

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL

BUREAU OF SOLID & HAZARDOUS WASTE

SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE

THE SURFACEWATER SUPPLIES FOUND BETWEEN LATITUDE 34-15-00 TO 34-23-15 AND LONGITUDE 79-45-00 TO 79-53-45

THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

TREATMENT WORKS NAME OWNERS IDENTIFICATION	STREAM NAME	LONGITUDE LATITUDE	SOURCE ID.	PUMP (GPM) TREATMENT (GPD)
Tifton Golf Club		79-47-30	GC	0.0
High Hill Creek	High Hill Creek	34-15-10		0.000
Cribb Farms		79-49-10	IR	0.0
Cribb Pond	Hurricane Branch	34-22-30		0.000
Williamson Farm		79-45-30	IR	0.0
Black Creek	Black Creek	34-16-20		0.000
M. Flowers Farm		79-50-00	IR	0.0
M. Flowers Stream	Black Creek	34-15-00		0.000

SOURCE IDENTIFICATION:

AQ - Aquaculture	IR - Irrigator	PT - Thermo-power	CO - Commerical	MI - Mining
ST - Sewage Treatment	GC - Golf Course	PH - Hydro-power	WS - Public Supply	IN - Industry

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REFERENCE



S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE

SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE

THE ENDANGERED SPECIES FOUND WITHIN 4 MILES AND BETWEEN LATITUDE 34-15-00 TO 34-23-15 AND LONGITUDE 79-45-00 TO 79-53-45

THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. HERITAGE TRUST FOUNDATION (01/92).

COMMON NAME SCIENTIFIC NAME	STATUS	LONGITUDE LATITUDE	DISTANCE FROM SITE	GRANK SRANK	DATE ADDED	TOPO MAP / COUNTY WHERE THE SPECIES IS LOCATED
WHITE-WICKY KALMIA CUNEATA	NC/CU	79-51-58 34-22-18	1.70 Miles ESE	G3 S1	08/01/08	DARLINGTON Darlington
VIRGINIA QUILLWORT ISOETES VIRGINICA	CU	79-52-20 34-22-08	1.37 Miles ESE	G1G2Q S1	10/18/41	DARLINGTON Darlington
SARVIS HOLLY ILEX AMELANCHIER	UN	79-52-20 34-22-08	1.37 Miles ESE	G3G4 S3	01/01/78	DARLINGTON Darlington
WHITE-WICKY KALMIA CUNEATA	NC/CU	79-51-58 34-22-18	0.00 Miles UNK	G3 S1	08/01/08	DARLINGTON Darlington
RED-COCKADED WOODPECKER PICOIDES BOREALIS	FE	79-52-00 34-18-43	0.00 Miles UNK	G2 S2	01/01/75	DARLINGTON Darlington
RED-COCKADED WOODPECKER PICOIDES BOREALIS	FE	79-48-26 34-22-35	0.00 Miles UNK	G2 S2	05/01/77	MONT Darlington
BOTTOMLAND HARDWOODS	UN	79-52-00 34-18-43	0.00 Miles UNK	G5 S4	01/01/75	DARLINGTON Darlington
BOTTOMLAND HARDWOODS	UN	79-50-00 34-18-03	0.00 Miles UNK	G5 S4	01/01/75	DARLINGTON Darlington
VIRGINIA QUILLWORT ISOETES VIRGINICA	CU	79-52-20 34-22-08	0.00 Miles UNK	G1G2Q S1	10/18/41	DARLINGTON Darlington
SITE RECORD ONAPP	UN	79-50-00 34-18-00	0.00 Miles UNK		01/01/75	DARLINGTON Darlington
SARVIS HOLLY ILEX AMELANCHIER	UN	79-52-20 34-22-08	0.00 Miles UNK	G3G4 S3	01/01/78	DARLINGTON Darlington

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE

SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE

THE ENDANGERED SPECIES FOUND WITHIN 4 MILES AND BETWEEN LATITUDE 34-15-00 TO 34-23-15 AND LONGITUDE 79-45-00 TO 79-53-45

THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. HERITAGE TRUST FOUNDATION (01/92).

COMMON NAME SCIENTIFIC NAME	STATUS	LONGITUDE LATITUDE	DISTANCE FROM SITE	GRANK SRANK	DATE ADDED	TOPO MAP / COUNTY WHERE THE SPECIES IS LOCATED
SITE RECORD NNAPP	UN	79-52-00 34-18-43	0.00 Miles UNK		01/01/75	DARLINGTON Darlington

GRANK/SRANK - Nature Conservancy rating:

- G1 - Critically imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction.
- G2 - Imperiled globally because of rarity or factor(s) making it vulnerable.
- G3 - Either very rare throughout its range or found locally in a restricted range, or having factors making it vulnerable.
- G4 - Apparently secure globally, though it may be rare in parts of its range.
- G5 - Demonstrably secure globally, though it may be rare in parts of its range.
- S1 - Critically imperiled state-wide because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation.
- S2 - Imperiled state-wide because of rarity or factor(s) making it vulnerable.
- S3 - Rare or uncommon in state.
- S4 - Apparently secure in state.
- S5 - Demonstrably secure in state.

STATUS - Legal status:

- FE - Federal Endangered
- FT - Federal Threatened
- NC - Of Concern, National (plants)
- RC - Of Concern, Regional (plants)
- SE - State Endangered (animals)
- ST - State Threatened (animals)
- SC - Of Concern, State (animals)
- SL - Of Concern, State (plants)
- SX - State Extirpated
- CU - Candidate (Federal review)
- UN - Undetermined

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY: Dixie Cup Co.	COUNTY:	AQUIFER:	SCWRC: 17L--z01
CONTACT: PHONE:	LONGITUDE: 79-52-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-17-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Connolly;	LOCATION: Darlington		

COMPANY: Hartsville Oil Mill	COUNTY:	AQUIFER:	SCWRC: 19K--z01
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab;	LOCATION: Hartsville		

COMPANY: Hartsville Oil Mill	COUNTY:	AQUIFER:	SCWRC: 19K--z02
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab;	LOCATION:		

COMPANY: Sonoco Corp.	COUNTY:	AQUIFER:	SCWRC: 19K--z03
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Garland; Flows;	LOCATION: Hartsville		

COMPANY: Sonoco Corp.	COUNTY:	AQUIFER:	SCWRC: 19K--z04
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Garland; Flows;	LOCATION: Hartsville		

NOTE: LATITUDES OR LONGITUDES ENDING IN 95 ARE ONLY ACCURATE TO WITHIN 5 MINUTES.  
LATITUDES OR LONGITUDES ENDING IN 91 ARE ONLY ACCURATE TO WITHIN 1 MINUTE.

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY: Sonoco Corp.	COUNTY:	AQUIFER:	SCWRC: 19K--z05
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Garland; Flows;	LOCATION: Hartsville		

COMPANY: Sonoco Corp.	COUNTY:	AQUIFER:	SCWRC: 19K--z06
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Garland; Flows;	LOCATION: Hartsville		

COMPANY: Sonoco Corp.	COUNTY:	AQUIFER:	SCWRC: 19K--z07
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Garland; Flows;	LOCATION: Hartsville		

COMPANY: Sonoco Crop.	COUNTY:	AQUIFER:	SCWRC: 19K--z08
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Garland; Flows;	LOCATION: Hartsville		

COMPANY: City of Hartsville	COUNTY:	AQUIFER:	SCWRC: 19K--z09
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 175.00	
REMARKS: SCWRC Well tab; DC:Layne-Atlantic; T=64;	LOCATION:		

NOTE: LATITUDES OR LONGITUDES ENDING IN 95 ARE ONLY ACCURATE TO WITHIN 5 MINUTES.  
LATITUDES OR LONGITUDES ENDING IN 91 ARE ONLY ACCURATE TO WITHIN 1 MINUTE.

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY: City of Hartsville	COUNTY:	AQUIFER:	SCWRC: 19K--z11
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 175.00	
REMARKS: SCWRC Well tab; DC:Layne-Atlantic; T=64;	LOCATION:		
COMPANY: Carolina Utilities	COUNTY:	AQUIFER:	SCWRC: 17L--z02
CONTACT: PHONE:	LONGITUDE: 79-52-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-17-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; WS; PT:28;	LOCATION: Darlington		
COMPANY: Carolina Utilities	COUNTY:	AQUIFER:	SCWRC: 17L--z03
CONTACT: PHONE:	LONGITUDE: 79-52-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-17-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Hughes Wells; 30ft cavity rept...;	LOCATION: Darlington		
COMPANY: Darlington Bank &	COUNTY:	AQUIFER:	SCWRC: 17L--z04
CONTACT: PHONE:	LONGITUDE: 79-52-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-17-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; Flows of 10 gpm;	LOCATION: Trust Co.		
COMPANY: Mr. L.G. O'Neal	COUNTY:	AQUIFER:	SCWRC: 19K--z12
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:B. Moore;	LOCATION: .6 mi. NE Hartsville		

NOTE: LATITUDES OR LONGITUDES ENDING IN 95 ARE ONLY ACCURATE TO WITHIN 5 MINUTES.  
LATITUDES OR LONGITUDES ENDING IN 91 ARE ONLY ACCURATE TO WITHIN 1 MINUTE.

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY: Ernest L. Jordan	COUNTY:	AQUIFER:	SCWRC: 18K--z01
CONTACT: PHONE:	LONGITUDE: 79-57-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Jess Spiers; T=65; Flows;	LOCATION: 2.5 mi. W Boveville		

COMPANY: City of Hartsville	COUNTY:	AQUIFER:	SCWRC: 19K--z13
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; DC:Layne-Atlantic; Test Well;	LOCATION:		

COMPANY: Darlington Mfg. Co.	COUNTY:	AQUIFER:	SCWRC: 17L--z05
CONTACT: PHONE:	LONGITUDE: 79-52-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-17-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab;	LOCATION:		

COMPANY: Nucor Steel	COUNTY:	AQUIFER:	SCWRC: 17K--z01
CONTACT: PHONE:	LONGITUDE: 79-52-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; USGS Well files; DHEC;	LOCATION: Darlington		

COMPANY: Nucor Steel	COUNTY:	AQUIFER:	SCWRC: 17K--z02
CONTACT: PHONE:	LONGITUDE: 79-52-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: DHEC;	LOCATION: Darlington		

NOTE: LATITUDES OR LONGITUDES ENDING IN 95 ARE ONLY ACCURATE TO WITHIN 5 MINUTES.  
LATITUDES OR LONGITUDES ENDING IN 91 ARE ONLY ACCURATE TO WITHIN 1 MINUTE.

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY: Hartsville Well Fld	COUNTY:	AQUIFER:	SCWRC: 19K--z14
CONTACT: PHONE:	LONGITUDE: 80-02-95	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-22-95	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: SCWRC Well tab; USGS Obs. Well; T:18Flowing;	LOCATION: #2		

COMPANY: Kelly's Country Kit.	COUNTY:	AQUIFER:	SCWRC: 17K--y01
CONTACT: PHONE:	LONGITUDE: 79-54-22	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-20-52	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 1.79 MILES SSW	ELEV: 170.00	
REMARKS: DHEC;	LOCATION: Darlington		

COMPANY: Magnolia Trailer Pk.	COUNTY:	AQUIFER:	SCWRC: 17L--g01
CONTACT: PHONE:	LONGITUDE: 79-53-91	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-18-91	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: DHEC;	LOCATION:		

COMPANY: Magnolia Trailer Pk.	COUNTY:	AQUIFER:	SCWRC: 17L--g02
CONTACT: PHONE:	LONGITUDE: 79-53-91	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-18-91	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 0.00 MILES UNK	ELEV: 0.00	
REMARKS: DHEC;	LOCATION:		

COMPANY: Yardborough Trailer	COUNTY:	AQUIFER:	SCWRC: 17L--d01
CONTACT: PHONE:	LONGITUDE: 79-53-26	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-19-19	DRILL DEPTH: 0	YIELD: 0
	DISTANCE: 3.48 MILES SSE	ELEV: 160.00	
REMARKS: DHEC;	LOCATION: Park		

NOTE: LATITUDES OR LONGITUDES ENDING IN 95 ARE ONLY ACCURATE TO WITHIN 5 MINUTES.  
LATITUDES OR LONGITUDES ENDING IN 91 ARE ONLY ACCURATE TO WITHIN 1 MINUTE.

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY: Swink's Trailer Park	COUNTY:	AQUIFER:	SCWRC: 17L--d02
CONTACT: PHONE:	LONGITUDE: 79-53-31	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-19-50	DRILL DEPTH: 0	YIELD: 0
,	DISTANCE: 2.88 MILES SSE	ELEV: 62.00	
REMARKS: DHEC;	LOCATION: Darlington		

COMPANY: Wallace Mobile Home	COUNTY:	AQUIFER:	SCWRC: 17K--p02
CONTACT: PHONE:	LONGITUDE: 79-54-20	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-21-12	DRILL DEPTH: 0	YIELD: 0
,	DISTANCE: 1.42 MILES SSW	ELEV: 172.00	
REMARKS: DHEC;	LOCATION: Park, Dovesville Hwy		

COMPANY: Landfill site	COUNTY:	AQUIFER:	SCWRC: 18K--s01
CONTACT: PHONE:	LONGITUDE: 79-56-00	COMP. DEPTH: 0	USE:
ADDRESS:	LATITUDE: 34-21-50	DRILL DEPTH: 0	YIELD: 0
,	DISTANCE: 2.22 MILES WSW	ELEV: 181.00	
REMARKS: DHEC;	LOCATION: Darlington		

COMPANY: W.W. Kirven	COUNTY:	AQUIFER:	SCWRC: 18K--k01
CONTACT: PHONE:	LONGITUDE: 79-50-50	COMP. DEPTH: 50	USE: IR
ADDRESS:	LATITUDE: 34-22-30	DRILL DEPTH: -1	YIELD: 100
,	DISTANCE: 2.79 MILES ENE	ELEV: -1.00	
REMARKS: Casing 0-40; Screen 40-50.	LOCATION: W.W. Kirven		

COMPANY: Dar. Co. Dev. W&S A.	COUNTY:	AQUIFER:	SCWRC: 17K--f01
CONTACT: PHONE:	LONGITUDE: 79-54-05	COMP. DEPTH: 480	USE:
ADDRESS:	LATITUDE: 34-23-41	DRILL DEPTH: 360	YIELD: -1
Dovesville,, SC	DISTANCE: 1.58 MILES NNW	ELEV: 160.00	
REMARKS:	LOCATION: Dovesville		

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LATITUDES OR LONGITUDES ENDING IN 91 ARE ONLY ACCURATE TO WITHIN 1 MINUTE.



S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY: Perfection Gear Co.	COUNTY:	AQUIFER:	SCWRC: 17K--p01
CONTACT: PHONE:	LONGITUDE: 79-54-12	COMP. DEPTH: 280	USE: IN
ADDRESS: Darlington,, SC	LATITUDE: 34-23-31	DRILL DEPTH: 476	YIELD: -1
REMARKS: Date completed was 5/65.	DISTANCE: 1.43 MILES NNW	ELEV: 170.00	
	LOCATION: Darlington		

COMPANY: Bethea Baptist Home	COUNTY:	AQUIFER:	SCWRC: 17L--u01
CONTACT: PHONE:	LONGITUDE: 79-50-91	COMP. DEPTH: 331	USE:
ADDRESS: Darlington,, SC	LATITUDE: 34-17-95	DRILL DEPTH: 300	YIELD: -1
REMARKS: Water is sampled once a mth by state mgn.	DISTANCE: 0.00 MILES UNK	ELEV: 138.00	
	LOCATION: Darlington		

COMPANY: Mrs. J.B. Colbert	COUNTY:	AQUIFER:	SCWRC: 18K--h01
CONTACT: PHONE:	LONGITUDE: 79-57-23	COMP. DEPTH: 225	USE: DO
ADDRESS: Auburndale Farms Hartsville,, SC	LATITUDE: 34-23-37	DRILL DEPTH: 290	YIELD: 50
REMARKS: Date completed was 1954.	DISTANCE: 3.77 MILES WNW	ELEV: 155.00	
	LOCATION: Hartsville		

COMPANY: W.W. Kirven	COUNTY:	AQUIFER:	SCWRC: 17K--k01
CONTACT: PHONE:	LONGITUDE: 79-50-50	COMP. DEPTH: 50	USE: IR
ADDRESS: ,	LATITUDE: 34-22-30	DRILL DEPTH: -1	YIELD: 100
REMARKS: Casing 0-40; Screen 40-50.	DISTANCE: 2.79 MILES ENE	ELEV: -1.00	
	LOCATION: W.W. Kirven		

COMPANY: WILLIAM F HUDSON	COUNTY:	AQUIFER:	SCWRC: 17L--e01
CONTACT: W.F. HUDSON	PHONE: 393-7748	LONGITUDE: 79-54-33	COMP. DEPTH: 39
ADDRESS: RT 5 BOX 24		LATITUDE: 34-19-12	DRILL DEPTH: -1
DARLINGTON, SC 29532		DISTANCE: 3.68 MILES SSW	ELEV: 171.00
REMARKS:		LOCATION: 1.3M FROM HWY 52 N ON GILCHRIS	

NOTE: LATITUDES OR LONGITUDES ENDING IN 95 ARE ONLY ACCURATE TO WITHIN 5 MINUTES.  
LATITUDES OR LONGITUDES ENDING IN 91 ARE ONLY ACCURATE TO WITHIN 1 MINUTE.

Date: 02/11/93

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTESITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES

THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY: Kirven Farm	COUNTY: Darlington	AQUIFER:	SCWRC: 16IR07G01
CONTACT: PHONE:	LONGITUDE: 79-50-50	COMP. DEPTH: 0	USE:
ADDRESS: Rt. 5, Box 110	LATITUDE: 34-22-30	DRILL DEPTH: 0	YIELD: 0
Darlington, SC 29532	DISTANCE: 2.79 MILES ENE	ELEV: 0.00	
REMARKS:	LOCATION:		
COMPANY: Kirven Farm	COUNTY: Darlington	AQUIFER:	SCWRC: 16IR07G02
CONTACT: PHONE:	LONGITUDE: 79-50-50	COMP. DEPTH: 0	USE:
ADDRESS: Rt. 5, Box 110	LATITUDE: 34-22-30	DRILL DEPTH: 0	YIELD: 0
Darlington, SC 29532	DISTANCE: 2.79 MILES ENE	ELEV: 0.00	
REMARKS:	LOCATION:		
COMPANY: Law Farm	COUNTY: Darlington	AQUIFER:	SCWRC: 16IR24G01
CONTACT: PHONE:	LONGITUDE: 79-55-40	COMP. DEPTH: 0	USE:
ADDRESS: Rt. 6, Box 207	LATITUDE: 34-19-20	DRILL DEPTH: 0	YIELD: 0
Darlington, SC 29532	DISTANCE: 3.90 MILES SSW	ELEV: 0.00	
REMARKS:	LOCATION:		
COMPANY: City of Darlington	COUNTY: Darlington	AQUIFER:	SCWRC: 16WS02G01
CONTACT: PHONE:	LONGITUDE: 79-54-12	COMP. DEPTH: 0	USE:
ADDRESS: Post Office Box 629	LATITUDE: 34-21-01	DRILL DEPTH: 0	YIELD: 0
Darlington, SC 29532	DISTANCE: 1.57 MILES SSW	ELEV: 0.00	
REMARKS:	LOCATION:		

NOTE: LATITUDES OR LONGITUDES ENDING IN 95 ARE ONLY ACCURATE TO WITHIN 5 MINUTES.  
LATITUDES OR LONGITUDES ENDING IN 91 ARE ONLY ACCURATE TO WITHIN 1 MINUTE.

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY:	Dixie Cup Co.	COUNTY:		AQUIFER:		SCWRC:	17L--z01
CONTACT:		PHONE:		LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-17-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;	DC:Connolly;		LOCATION:	Darlington		

COMPANY:	Hartsville Oil Mill	COUNTY:		AQUIFER:		SCWRC:	19K--z01
CONTACT:		PHONE:		LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;			LOCATION:	Hartsville		

COMPANY:	Hartsville Oil Mill	COUNTY:		AQUIFER:		SCWRC:	19K--z02
CONTACT:		PHONE:		LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;			LOCATION:			

COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z03
CONTACT:		PHONE:		LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;	DC:Garland; Flows;		LOCATION:	Hartsville		

COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z04
CONTACT:		PHONE:		LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;	DC:Garland; Flows;		LOCATION:	Hartsville		

COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z05
CONTACT:		PHONE:		LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z06
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	Sonoco Corp.	COUNTY:		AQUIFER:		SCWRC:	19K--z07
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	Sonoco Crop.	COUNTY:		AQUIFER:		SCWRC:	19K--z08
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	SCWRC Well tab; DC:Garland; Flows;			LOCATION:	Hartsville		
COMPANY:	City of Hartsville	COUNTY:		AQUIFER:		SCWRC:	19K--z09
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	175.00		
REMARKS:	SCWRC Well tab; DC:Layne-Atlantic; T=64;			LOCATION:			
COMPANY:	City of Hartsville	COUNTY:		AQUIFER:		SCWRC:	19K--z11
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	175.00		

Date: 02/11/93

## S.C. DEPARTMENT OF HEALTH &amp; ENVIRONMENTAL CONTROL

## BUREAU OF SOLID &amp; HAZARDOUS WASTE

SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE

THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES

THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

REMARKS:	SCWRC Well tab;	DC:Layne-Atlantic;	T=64;	LOCATION:	
COMPANY:	Carolina Utilities	COUNTY:		AQUIFER:	SCWRC: 17L--z02
CONTACT:	PHONE:	LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-17-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; WS; PT:28;	LOCATION:	Darlington		
COMPANY:	Carolina Utilities	COUNTY:		AQUIFER:	SCWRC: 17L--z03
CONTACT:	PHONE:	LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-17-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; DC:Hughes Wells;	30ft cavity rept...;	LOCATION:	Darlington	
COMPANY:	Darlington Bank &	COUNTY:		AQUIFER:	SCWRC: 17L--z04
CONTACT:	PHONE:	LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-17-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; Flows of 10 gpm;	LOCATION:	Trust Co.		
COMPANY:	Mr. L.G. O'Neal	COUNTY:		AQUIFER:	SCWRC: 19K--z12
CONTACT:	PHONE:	LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; DC:B. Moore;	LOCATION:	.6 mi. NE Hartsville		
COMPANY:	Ernest L. Jordan	COUNTY:		AQUIFER:	SCWRC: 18K--z01
CONTACT:	PHONE:	LONGITUDE:	79-57-95	COMP. DEPTH:	0 USE:
ADDRESS:		LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD: 0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab; DC:Jess Spiers;	T=65; Flows;	LOCATION:	2.5 mi. W Boveville	

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Date: 02/11/93

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY:	City of Hartsville	COUNTY:		AQUIFER:		SCWRC:	19K--z13
CONTACT:		PHONE:		LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;	DC:Layne-Atlantic;	Test Well;	LOCATION:			

COMPANY:	Darlington Mfg. Co.	COUNTY:		AQUIFER:		SCWRC:	17L--z05
CONTACT:		PHONE:		LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-17-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;			LOCATION:			

COMPANY:	Nucor Steel	COUNTY:		AQUIFER:		SCWRC:	17K--z01
CONTACT:		PHONE:		LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;	USGS Well files;	DHEC;	LOCATION:	Darlington		

COMPANY:	Nucor Steel	COUNTY:		AQUIFER:		SCWRC:	17K--z02
CONTACT:		PHONE:		LONGITUDE:	79-52-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	DHEC;			LOCATION:	Darlington		

COMPANY:	Hartsville Well Fld	COUNTY:		AQUIFER:		SCWRC:	19K--z14
CONTACT:		PHONE:		LONGITUDE:	80-02-95	COMP. DEPTH:	0 USE:
ADDRESS:				LATITUDE:	34-22-95	DRILL DEPTH:	0 YIELD:
				DISTANCE:	0.00 MILES UNK	ELEV:	0.00
REMARKS:	SCWRC Well tab;	USGS Obs. Well;	T:18Flowing;	LOCATION:	#2		

COMPANY:	Kelly's Country Kit.	COUNTY:		AQUIFER:		SCWRC:	17K--y01
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S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

CONTACT:	PHONE:	LONGITUDE:	79-54-22	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-20-52	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	1.79 MILES SSW	ELEV:	170.00		
REMARKS:	DHEC;			LOCATION:	Darlington		
COMPANY:	Magnolia Trailer Pk.	COUNTY:		AQUIFER:		SCWRC:	17L--g01
CONTACT:	PHONE:	LONGITUDE:	79-53-91	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-18-91	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	DHEC;			LOCATION:			
COMPANY:	Magnolia Trailer Pk.	COUNTY:		AQUIFER:		SCWRC:	17L--g02
CONTACT:	PHONE:	LONGITUDE:	79-53-91	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-18-91	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	0.00 MILES UNK	ELEV:	0.00		
REMARKS:	DHEC;			LOCATION:			
COMPANY:	Yardborough Trailer	COUNTY:		AQUIFER:		SCWRC:	17L--d01
CONTACT:	PHONE:	LONGITUDE:	79-53-26	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-19-19	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	3.48 MILES SSE	ELEV:	160.00		
REMARKS:	DHEC;			LOCATION:	Park		
COMPANY:	Swink's Trailer Park	COUNTY:		AQUIFER:		SCWRC:	17L--d02
CONTACT:	PHONE:	LONGITUDE:	79-53-31	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-19-50	DRILL DEPTH:	0	YIELD:	0
		DISTANCE:	2.88 MILES SSE	ELEV:	62.00		
REMARKS:	DHEC;			LOCATION:	Darlington		
COMPANY:	Wallace Mobile Home	COUNTY:		AQUIFER:		SCWRC:	17K--p02
CONTACT:	PHONE:	LONGITUDE:	79-54-20	COMP. DEPTH:	0	USE:	
ADDRESS:		LATITUDE:	34-21-12	DRILL DEPTH:	0	YIELD:	0

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

REMARKS: ,  
DISTANCE: 1.42 MILES SSW ELEV: 172.00  
LOCATION: Park, Dovesville Hwy

COMPANY: Landfill site COUNTY: AQUIFER: SCWRC: 18K--s01  
CONTACT: PHONE: LONGITUDE: 79-56-00 COMP. DEPTH: 0 USE:  
ADDRESS: LATITUDE: 34-21-50 DRILL DEPTH: 0 YIELD: 0  
REMARKS: ,  
DISTANCE: 2.22 MILES WSW ELEV: 181.00  
LOCATION: Darlington

COMPANY: W.W. Kirven COUNTY: AQUIFER: SCWRC: 18K--k01  
CONTACT: PHONE: LONGITUDE: 79-50-50 COMP. DEPTH: 50 USE: IR  
ADDRESS: LATITUDE: 34-22-30 DRILL DEPTH: -1 YIELD: 100  
REMARKS: ,  
DISTANCE: 2.79 MILES ENE ELEV: -1.00  
LOCATION: W.W. Kirven

COMPANY: Dar. Co. Dev. W&S A. COUNTY: AQUIFER: SCWRC: 17K--f01  
CONTACT: PHONE: LONGITUDE: 79-54-05 COMP. DEPTH: 480 USE:  
ADDRESS: LATITUDE: 34-23-41 DRILL DEPTH: 360 YIELD: -1  
Dovesville, , SC DISTANCE: 1.58 MILES NNW ELEV: 160.00  
REMARKS: LOCATION: Dovesville

COMPANY: Perfection Gear Co. COUNTY: AQUIFER: SCWRC: 17K--p01  
CONTACT: PHONE: LONGITUDE: 79-54-12 COMP. DEPTH: 280 USE: IN  
ADDRESS: LATITUDE: 34-23-31 DRILL DEPTH: 476 YIELD: -1  
Darlington, , SC DISTANCE: 1.43 MILES NNW ELEV: 170.00  
REMARKS: Date completed was 5/65. LOCATION: Darlington

COMPANY: Bethea Baptist Home COUNTY: AQUIFER: SCWRC: 17L--u01  
CONTACT: PHONE: LONGITUDE: 79-50-91 COMP. DEPTH: 331 USE:  
ADDRESS: LATITUDE: 34-17-95 DRILL DEPTH: 300 YIELD: -1  
Darlington, , SC DISTANCE: 0.00 MILES UNK ELEV: 138.00  
REMARKS: Water is sampled once a mth by state mgn. LOCATION: Darlington



S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
THIS REPORT IS BASED UPON DATA PROVIDED BY THE S.C. WATER RESOURCES COMMISSION (02/92).

COMPANY:	Mrs. J.B. Colbert	COUNTY:		AQUIFER:		SCWRC:	18K--h01
CONTACT:	PHONE:	LONGITUDE:	79-57-23	COMP. DEPTH:	225	USE:	DO
ADDRESS:	Auburndale Farms	LATITUDE:	34-23-37	DRILL DEPTH:	290	YIELD:	50
	Hartsville, , SC	DISTANCE:	3.77 MILES WNW	ELEV:	155.00		
REMARKS:	Date completed was 1954.			LOCATION:	Hartsville		

COMPANY:	W.W. Kirven	COUNTY:		AQUIFER:		SCWRC:	17K--k01
CONTACT:	PHONE:	LONGITUDE:	79-50-50	COMP. DEPTH:	50	USE:	IR
ADDRESS:		LATITUDE:	34-22-30	DRILL DEPTH:	-1	YIELD:	100
	,	DISTANCE:	2.79 MILES ENE	ELEV:	-1.00		
REMARKS:	Casing 0-40; Screen 40-50.			LOCATION:	W.W. Kirven		

COMPANY:	WILLIAM F HUDSON	COUNTY:		AQUIFER:		SCWRC:	17L--e01
CONTACT:	W.F. HUDSON	PHONE:	393-7748	LONGITUDE:	79-54-33	COMP. DEPTH:	39
ADDRESS:	RT 5 BOX 24			LATITUDE:	34-19-12	DRILL DEPTH:	-1
	DARLINGTON , SC 29532			DISTANCE:	3.68 MILES SSW	ELEV:	171.00
REMARKS:				LOCATION:	1.3M FROM HWY 52 N ON GILCHRIS		

COMPANY:	Kirven Farm	COUNTY:	Darlington	AQUIFER:		SCWRC:	16IR07G01
CONTACT:	PHONE:	LONGITUDE:	79-50-50	COMP. DEPTH:	0	USE:	
ADDRESS:	Rt. 5, Box 110	LATITUDE:	34-22-30	DRILL DEPTH:	0	YIELD:	0
	Darlington , SC 29532	DISTANCE:	2.79 MILES ENE	ELEV:	0.00		
REMARKS:				LOCATION:			

COMPANY:	Kirven Farm	COUNTY:	Darlington	AQUIFER:		SCWRC:	16IR07G02
CONTACT:	PHONE:	LONGITUDE:	79-50-50	COMP. DEPTH:	0	USE:	
ADDRESS:	Rt. 5, Box 110	LATITUDE:	34-22-30	DRILL DEPTH:	0	YIELD:	0
	Darlington , SC 29532	DISTANCE:	2.79 MILES ENE	ELEV:	0.00		
REMARKS:				LOCATION:			

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Date: 02/11/93

S.C. DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL  
BUREAU OF SOLID & HAZARDOUS WASTE  
SITE BEING EVALUATED NUCOR STEEL, 342220.0 LATITUDE 795345.0 LONGITUDE  
THE GROUNDWATER SUPPLIES FOUND WITHIN 4 MILES  
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COMPANY:	Law Farm	COUNTY:	Darlington	AQUIFER:		SCWRC:	16IR24G01		
CONTACT:		PHONE:		LONGITUDE:	79-55-40	COMP. DEPTH:	0	USE:	
ADDRESS:	Rt. 6, Box 207			LATITUDE:	34-19-20	DRILL DEPTH:	0	YIELD:	0
	Darlington , SC	29532		DISTANCE:	3.90 MILES SSW	ELEV:	0.00		
REMARKS:				LOCATION:					

COMPANY:	City of Darlington	COUNTY:	Darlington	AQUIFER:		SCWRC:	16WS02G01		
CONTACT:		PHONE:		LONGITUDE:	79-54-12	COMP. DEPTH:	0	USE:	
ADDRESS:	Post Office Box 629			LATITUDE:	34-21-01	DRILL DEPTH:	0	YIELD:	0
	Darlington , SC	29532		DISTANCE:	1.57 MILES SSW	ELEV:	0.00		
REMARKS:				LOCATION:					

## SECTION 2

### PROCESS DESCRIPTION

Nucor Steel is a secondary steel production facility with a capacity to produce 520,000 tons of low carbon steel per year. The facility contains five electric arc furnaces (EAF), one ladle metallurgical facility (LMF), two continuous casters, and two reheat furnaces. The final product is rolled low carbon steel in various shapes. Approximately 475,000 tons of steel is produced in rolled form; the balance may be shipped or sold to other steel facilities.

#### 2.1 Steel Production Process

Steel scrap is received at the plant by rail and truck and is stock piled for future use. The steel scrap is transferred to a precharging area and to charging buckets by magnetic crane.

Each EAF is operated by batch process. The scrap steel is placed in a charging bucket and weighed prior to charging. The charging bucket is hoisted above the open EAF vessel, is opened at the bottom, and the charge material is dumped into the vessel. After charging the EAF, the roof is swung back into place over the furnace vessel and seated. The arc is struck between three electrodes that are triangularly arranged. As the process or "melt" begins, the electrodes bore down through the scrap steel, melting material as they descend to form a pool of molten metal at the bottom of the furnace. This pool of metal increases in size as the melt continues and allows unmelted scrap to "collapse" into the molten pool. At some point during the melt cycle the current is shut off, the electrodes retracted, and the roof swung away for an additional charge of material. The scrap material is dropped into the pool of molten metal, the roof is swung back into position and sealed, the electrodes are extended back into the furnace, and the current is switched on to continue the melt cycle. This procedure may be repeated for one or more additional charges. Any

required alloying materials and limestone may be added to the furnace after the last charge. Near the end of the melt cycle, an oxygen lance may be used to oxidize residual impurities (i.e., carbon) in the molten steel.

The EAF is tapped by retracting the electrodes, swinging the furnace roof away, and tilting the furnace vessel so that the molten material can exit through a pouring spout. The molten steel is poured into a preheated ladle which is removed at the end of the tap by overhead crane. If additional refining is required, the ladle is moved to the LMF for addition of limestone and alloys, and further melting to produce structural grade steel.

The continuous casting machine receives the ladle from the tapped furnace or the LMF. The ladle is tapped from the bottom, which allows casting of only the molten steel. After the steel has been drained, the slag layer is dumped in a slag area to be cooled. The steel billets exiting the caster are cut to a convenient length and cooled in a holding area.

Cold steel billets are heated in a reheat furnace to prepare them for rolling. The hot billets are rolled into various steel shapes and prepared for final processing in the rolling mills.

## **2.2 Furnace Operations**

Figure 1 shows the general process flow and furnace configuration for Nucor Steel. The furnace operations are located in a long metal building that runs roughly north and south. The "old shop" area, or No. 1 melt shop, contains EAF Nos. 1 through 3 and the LMF and is located in the north end of the building. EAF Nos. 1 through 3 have a rated capacity of 30 tons per heat and a heat cycle of approximately 2 hours 15 minutes. These units were constructed in 1969 to 1973. Emissions from the furnaces are controlled during melting by side draft hoods vented to a positive pressure shaker type baghouse (Baghouse No. 1). Emissions during charging and tapping of these EAF's are uncontrolled. The fugitive emissions escape from the building through roof vents.

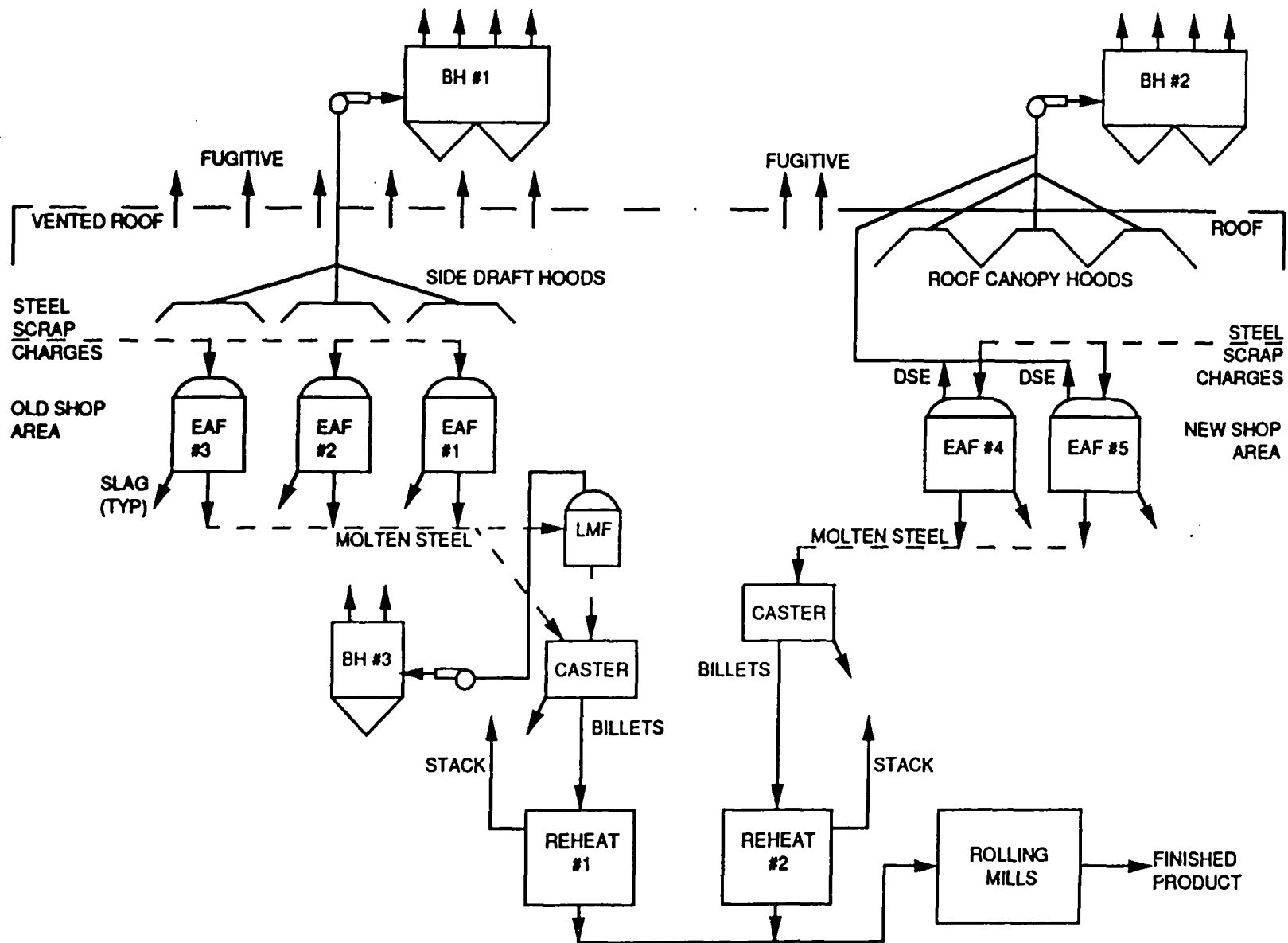


Figure 1. Process flow diagram.

The LMF resembles a small furnace roof with electrodes that fits over the ladle. The refining process is accomplished in the ladle, and the heat cycle is approximately 15 minutes. Emissions during operation are controlled by a side draft hood vented to a positive pressure pulse jet baghouse (Baghouse No. 3). The production rate of the No. 1 melt shop is 250,000 to 260,000 tons/yr including the LMF production of approximately 225,000 tons/yr.

The "new shop" area, or No. 2 melt shop, contains EAF Nos. 4 and 5 and is located in the south end of the building. These units have a rated capacity of 40 tons per heat and a heat cycle of approximately 1 hour 15 minutes. EAF Nos. 4 and 5 were originally installed in 1978 and are subject to New Source Performance Standards (NSPS). Emissions are controlled during melting by direct shell evacuation (DSE) system. Three canopy hoods, located in the roof of the building over each furnace, are intended to control emissions from slagging, charging, and tapping. Ductwork from both systems is merged outside of the building and the emissions are directed to a positive pressure reverse air baghouse (Baghouse No. 2). The production rate of the No. 2 melt shop is 250,000 to 260,000 tons/yr.

The two reheat furnaces are used to heat the steel billets prior to rolling. Both furnaces may be fired with natural gas or propane. The No. 2 reheat furnace was installed in 1990 and is equipped with low  $\text{NO}_x$  burners and 40 percent flue gas recirculation. Exhaust gases from both furnaces are vented to outside stacks.

### **SECTION 3**

#### **REGULATORY REQUIREMENTS**

Table 1 summarizes the regulatory requirements for air emissions from each source. Sources 01-06 (EAF Nos. 1 to 5 and Reheat Furnace No. 1) were issued a consolidated operating permit on August 24, 1989. The operating permit is contained in Appendix A. The Reheat Furnace No. 1 was modified late in 1989 to burn natural gas or propane, but the emissions limitations remained the same as indicated on the operating permit. The Reheat Furnace No. 2 began operating in July 1990, and the construction permit for this unit is contained in Appendix B. The LMF was constructed in early 1990, and the construction permit for this unit is contained in Appendix C.

EAF Nos 4 and 5 are subjected to New Source Performance Standards (NSPS). The units were originally constructed in 1978 and both were subject to 40CFR60 Subpart AA. This Federal regulation is generally much more restrictive for opacity than the 20 percent opacity limitation shown in the SCDHEC operating permit. EAF No. 5 was replaced with or modified to a continuously charged unit in 1986 (Construction permit No. 0820-0001-CA). At this time Subpart AAa should have applied to EAF No. 5. The continuously charged unit was removed and replaced with the original furnace shell in late 1987 or early 1988. It appears that Subpart AAa should continue to apply to EAF No. 5. A copy of 40CFR60 Subparts AA and AAa are included in Appendix D for reference.

Nucor Steel is under Consent Order No. 88-22-A (Appendix E) for operation of EAF Nos. 4 and 5, issued due to previous violations and problems with opacity monitoring equipment. Opacity is being monitored by Reference Method 9 in lieu of continuous opacity monitoring instruments.

TABLE 1. SUMMARY OF REGULATORY REQUIREMENTS

ID No.	Source name	Pollutants emitted	Permit/applicable regulation	Allowable emissions/restrictions
01-03	EAf Nos. 1-3 (each)	PM Opacity	Permit 0820-0001 SC 62.5-4-VII	18.6 lb/h or 81.25 tons/yr 20% including fugitive emissions
04-05	EAf Nos. 4-5 (each)	PM Opacity <sup>a</sup>  Opacity EAF No. 4  Opacity EAF No. 5	Permit 0820-0001 SC 62.5-4-VII  40CFR60 Subpart AA 60.272(a)(2) 60.272(a)(3)  60.272(b)  40CFR60 Subpart AAa 60.272a(a)(2) 60.272a(a)(3) 60.272a(b)	0.0052 gr/dscf or 35.1 tons/yr 20% including fugitive emissions, except 10% from dust handling systems  3% from control device 6% from shop, except: 20% during charging 40% during tapping 10% from dust handling equipment  3% from control device 6% from shop 10% from dust handling system
06	Reheat furnace No. 1	PM  Opacity	Construction Permit No. 0820-0001-CB SC 62.5-4-IX-B	15.3 lb/h or 67 tons/yr  20%
CD	Reheat furnace No. 2	PM  NO <sub>x</sub> Opacity	Construction Permit No. 0820-0001-CD  SC 62.5-4-IX-B	0.5 lb/h or 2.2 tons/yr  13.7 lb/h and 39.9 tons/yr 20%
CC	LMF	PM <sup>b</sup>  Opacity	Construction Permit No. 0820-0001-CC SC 62.5-4-VIII SC 62.5-4-VII	40.35 lb/h  20%

<sup>a</sup>The operating permit is less restrictive than the Federal NSPS regulations for opacity except for shop emissions during charging or tapping.

<sup>b</sup>There is a question as to whether Subpart AAa should apply to the LMF.



The LMF was not considered to be subject to NSPS by SCDHEC under the construction permit. However, the LMF appears to conform to the definition of an EAF as contained in 40CFR60 Subpart AAa, 60.271a, and the NSPS regulations may be applicable to this facility.

## **SECTION 4**

### **FINDINGS AND OBSERVATIONS**

#### **4.1 EAF Nos. 1 to 3 and Control Systems**

The old shop area containing EAF Nos. 1 to 3 was briefly inspected. EAF No. 1 and EAF No. 3 were observed in operation. EAF No. 2 was temporarily not operating due to maintenance problems the morning of the inspection. Some fugitive emissions were noted from EAF No. 1 from around the furnace vessel lip during meltdown. It appeared that a small amount of scrap on the vessel lip was preventing proper seating of the furnace roof. Side draft hoods are used to capture emissions from each furnace during meltdown. Fugitive emissions from slagging, charging, and tapping are uncontrolled, and these emissions exit from the shop building through longitudinal vents in the roof of the building.

Baghouse No. 1 is an American Air Filter unit that receives emissions from EAF Nos. 1 to 3 during meltdown. This baghouse is a shaker-type unit that contains 18 compartments, each with a separate vent. The unit was designed for 200,000 acfm with an air-to-cloth ratio (A/C) of 2.96:1. Manometers indicating pressure in each compartment of this unit were checked. Three of the manometers read zero or were broken. The other 15 ranged from 0.5 in. to 10.5 in. of water with an average reading of 6.5 in. A small air leak was noted in each of the housings for the two fans serving this unit.

#### **4.2 EAF Nos. 4 and 5 and Control Systems**

The interior of the new shop area containing EAF Nos. 4 and 5 was also briefly inspected. Both furnaces were operating. No unusual conditions were observed in the furnace area. The shop building is very large, with most of the south end of the building being open. Canopy hoods are located in the roof of the building over each

furnace. Longitudinal roof vents are also located to the north and south of the canopy hoods. During VE observations (Section 4.4) fugitive emissions were observed from the roof vents to the north of the canopy hoods, but very little emissions were observed from the south vents. This indicates that air current drift inside the building was generally from south to north during the inspection.

Furnace shell pressure and gas flow rates are required to be monitored on EAF Nos. 4 and 5. The negative furnace vessel pressures for both furnaces were observed to be between 3.0 and 3.2 in. of water as converted from the gauges. The flow rate monitors for the gas flow through canopy hoods for EAF No. 4 showed 125,000 scfm, and for EAF No. 5 the gas flow was 181,300 scfm (converted from gauge readings). The canopy damper positions were not noted.

Baghouse No. 2, which receives emissions from EAF Nos. 4 and 5, is a Cadre reverse-air cleaning unit with 16 compartments and monovents along the top of each of the two rows of compartments for cleaned air discharge. The unit has a cloth area of 126,720 ft<sup>2</sup> and was designed to handle 360,000 acfm at an A/C of 2.84:1. The unit has two fans providing positive pressure. Pressure-indicating manometers were examined for each compartment and 8 of these manometers were not working. Most of the other manometers showed 5 in. of water while two manometers showed 1 to 2 in. of water. The manometers apparently pose a maintenance problem and/or are not being well maintained. Doors to several compartments were opened, and interior conditions appeared normal with the bags being inflated and no excessive dust deposits noted. One bag was noted collapsed on the floor at the door to one compartment. A minor air leak was noted in the main duct directly above the second fan. A larger air leak was noted in the ductwork at the front face of the baghouse where the ducts begin to split for distribution to each compartment. Rotary valves and screw conveyors for the dust handling system under the hoppers appeared to be functioning normally.

### **4.3 VE Observations**

VE observations were conducted for Baghouse No. 1, old shop building, Baghouse No. 2, and new shop building using Reference Method 9 (Appendix F). Heat sheets for the furnaces corresponding to the times of observation were also obtained (Appendix G). EAF No. 2 was not operating during the VE observations.

The highest and second highest 6-minute average opacities were computed for observation periods of 18 minutes total. These are shown in Table 2. Baghouse No. 1 and the old shop were in compliance for opacity. Baghouse No. 2 was found to be out of compliance under NSPS Subpart AA. Emissions from the new shop building due to EAF No. 5 were out of compliance with NSPS Subpart AAa. However, if Subpart AA is to apply to EAF No. 5, then these emissions were in compliance.

### **4.4 LMF and Control System**

The LMF consists of a furnace-type roof with three electrodes and a transformer. The ladle with molten steel is moved to this facility and becomes a furnace shell when the unit is operating. There are no "charging" emissions from this unit. "Tapping" emissions would occur at the caster. Emissions during operation are captured by a side draft hood and are vented to a positive pressure pulse jet baghouse. Baghouse No. 3 has two compartments with 480 bags designed for 30,000 acfm at 300° F and an A/C of 4.0:1. There are two exhaust vents.

During the inspection at approximately 9:00 a.m. the LMF was observed to be operating and the baghouse fan was not in operation. However, no excessive emissions were observed from the LMF roof. Apparently the Baghouse No. 3 fan is manually controlled, and it was not turned on at the time for some reason. Both the LMF and Baghouse No. 3 were operating at approximately 12:15 p.m. Instantaneous opacities observed from Baghouse No. 3 were less than 20 percent.

TABLE 2. SUMMARY OF VE OBSERVATIONS

Source	Highest opacity/ 2nd highest opacity	Opacity limit	Incident	Status
Baghouse No. 1 (EAF Nos. 1-3)	0/0	20%/20%	N/A	In compliance
Old shop building (EAF Nos. 1-3)	16.7%/6.5%	20%/20%	EAF No. 3 charged/EAF No. 1 charged	In compliance
Baghouse No. 2 (EAF Nos. 4 and 5)	13.5%/6.7%	3%/3%	N/A	Out of compliance
New Shop Building (EAF Nos. 4 and 5)	15%/4.8%	6 <sup>a</sup> /20%	EAF No. 5 charged/EAF No. 4 tapped	Out of compliance for EAF No. 5 under Subpart AAa

<sup>a</sup>If NSPS Subpart AA applies, the limit is 20% during charging.

#### 4.5 Reheat Furnaces

Both reheat furnaces are fueled with natural gas or propane and are not significant particulate matter sources. Reheat Furnace No. 1 is a  $100 \times 10^6$  Btu/h unit and Reheat Furnace No. 2 is a  $79 \times 10^6$  Btu/h unit, which uses low  $\text{NO}_x$  burners and 40 percent flue gas recirculation. No unusual conditions were noted around these furnaces. Opacities from the stacks serving these units were zero.

## **SECTION 5**

### **CONCLUSIONS**

This Level II inspection of Nucor Steel was unannounced and is thought to represent more or less normal overall operating conditions for the facility. Baghouse No.2 , serving EAF Nos. 4 and 5, was found to be out of compliance for opacity under NSPS regulations. EAF No. 5 was also out of compliance for shop emissions if 40CFR60 Subpart AAa applies to this facility. The LMF was observed to be in violation for operating uncontrolled for an unknown period of time during the morning of the inspection. Other sources appeared to be in compliance.

The opacity limit stated in the operating permit issued by SCDHEC for EAF Nos. 4 and 5 is in error. This permit should be reissued with all sources included and with the applicable NSPS opacity limits stated in the permit.

## **SECTION 6**

### **RECOMMENDATIONS**

#### **6.1 Nucor Steel Plant**

- ° Repair baghouse manometers and maintain in good working order
- ° Repair leaks in ductwork under normal maintenance
- ° Operate control system for LMF at all times that the facility is operating. Tie baghouse fan switch to LMF power for automatic operation
- ° Provide explanation of excessive opacity for Baghouse No. 2 and provide a plan to correct this situation.

#### **6.2 Regulatory Issues**

SCDHEC should:

- ° Reissue operating permit for all sources with the applicable NSPS regulatory limits incorporated in the permit
- ° Resolve issue of whether NSPS Subparts AA or AAa should apply to EAF No. 5
- ° Resolve issue of whether the LMF should be considered an EAF, conforming to NSPS Subpart AAa
- ° A detailed Level III inspection may be required to resolve these problems.